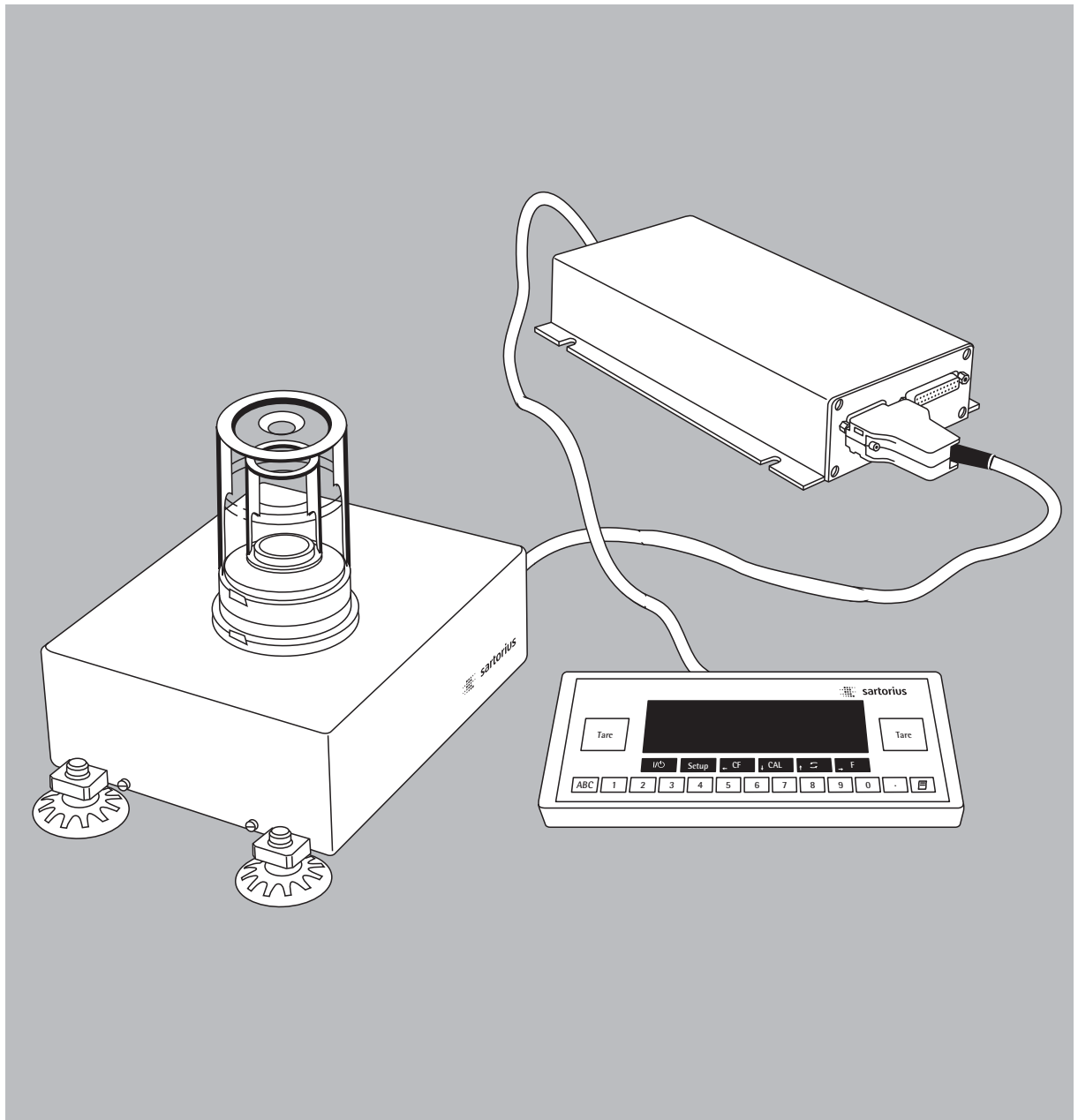


Operating Instructions

# Sartorius Pipette Calibration Balance

Model GPC65-CW



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The GPC65-CW models are high-resolution weigh cells for precise mass determination and offer weighing capacities from 0.01 mg to 60 g (with load receptor only).

This compact weigh cell can be affixed to any smooth, even surface and thus enables determination of weight within a restricted space.

A broad range of special performance features makes the pipette calibration balances ideal for use as measuring and test equipment in ISO or GLP quality management systems.

These features include:

- isoCAL fully automatic self-calibrating and adjustment function (time- and temperature-dependent).  
The built-in calibration weight lets you calibrate and adjust the weigh cell at any time by pressing a key.

- reproTEST for quick determination of the standard deviation to check the repeatability of results

- ISO/GLP-compliant recording capability for printouts

- Password-protected menu lock

- Display of maintenance | service intervals when due

The weigh cell meets the highest requirements placed on the accuracy and reliability of weighing results through the following features:

- Efficient filtering-out of vibration
- Stable and repeatable results
- Excellent readability under any lighting conditions
- Rugged design and durable weighing system
- Automatic initialization when you switch on the balance

The weigh cell saves work and speeds up both simple and complex routine applications through:

- Ultrafast response times

Built-in application programs:

Application level 1:

- Second weight unit
- Counting
- Weighing in percent
- Animal weighing
- Recalculation
- Calculation
- Density determination
- Differential weighing
- Air buoyancy correction
- Air density determination
- Diameter determination

Application level 2:

- Checkweighing
- Time-controlled functions

Application level 3:

- Totalizing
- Formulation
- Statistics

Additional functions:

- Second tare memory
- Identification codes
- Product data memory
- SQmin function
- Manual data storage in application level 3
- DKD uncertainty of measurement
- Easy input of IDs for samples or other weighed objects
- On request: control using an external computer

## Symbols

The following symbols are used in these instructions:

- indicates required steps
- indicates steps required only under certain conditions
- > describes what happens after a certain step has been performed
- indicates an item in a list
- ⚠ indicates a hazard

## Hotline:

For advice on the use of applications, just call or fax your local Sartorius office. For the address, please visit our Internet website at: [www.sartorius.com](http://www.sartorius.com)  
Phone: +49 (0) 551.308.4440  
Fax: +49 (0) 551.308.4449

# Warnings and Safety Precautions

## Safety Precautions

- The weigh cell complies with the applicable regulations and standards for electrical equipment, electromagnetic compatibility, and the stipulated safety requirements. Improper use or handling can result in damage and/or injury.

To prevent damage to the equipment, read these operating instructions carefully before using your balance. Keep these instructions in a safe place.

Follow the instructions below to ensure safe and trouble-free operation of your balance:

- ⚠ Do not use this equipment in hazardous areas, zones exposed to explosive gases or dusts, or areas exposed to potentially explosive materials.
- ⚠ Use of the weigh cell in areas where medical equipment is operated is not permitted.
- ⚠ Do not expose the equipment to extreme temperatures, moisture, shocks, or vibrations.
- ⚠ Make sure that the voltage rating printed on the AC adapter is identical to your local line voltage
- ⚠ If you use electrical equipment in installations and under ambient conditions subject to more stringent safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.
- ⚠ If you connect a different weigh cell or electronics module from Sartorius, make sure the devices you connect are made to be operated together. Check the equipment numbers before connecting the devices.
- ⚠ Use of the weigh cell in areas where medical equipment is operated is not permitted.
- ⚠ If you connect a different weigh cell or electronics module from Sartorius, make sure to connect devices that are made to be operated together. Check the equipment numbers before connecting the devices.

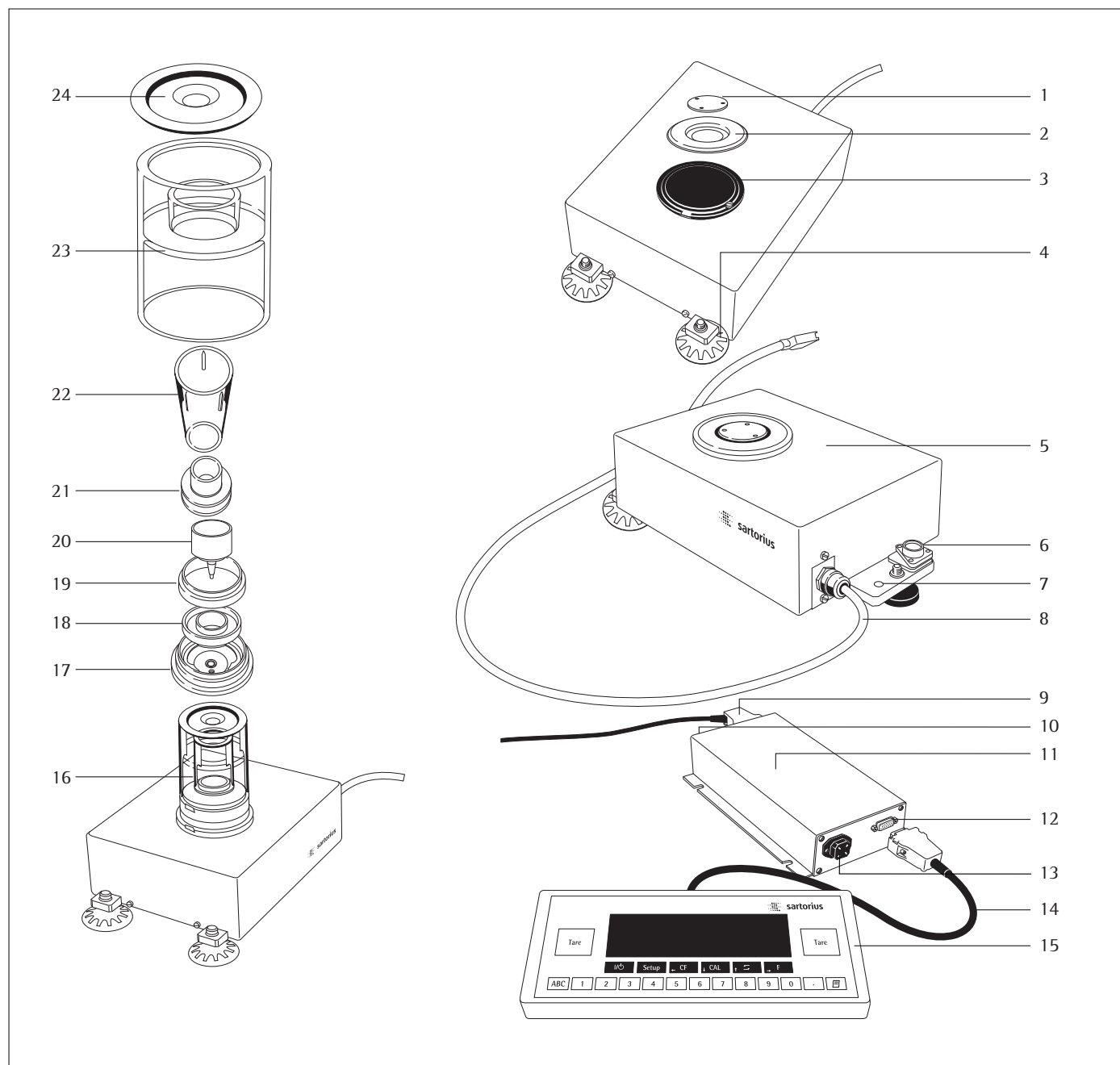
- ⚠ Exposure to excessive electromagnetic interference can cause the readout value to change. Once the disturbance has ceased, the instrument can be used again in accordance with its intended purpose.
- ⚠ The equipment may be opened only by authorized service technicians who have been trained by Sartorius and who follow Sartorius' standard operating procedures for maintenance and repair work.
- ⚠ Connect only Sartorius accessories and options, as these are optimally designed for use with your weigh cell.
- ⚠ When cleaning your weigh cell, make sure that no liquid enters the equipment housing; use only a slightly moistened cloth to clean the balance.
- ⚠ Do not open the weigh cell housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.
- ⚠ If any problems occur, disconnect the device from power before performing any repair work on the device.
- ⚠ Make absolutely sure to disconnect the electronics module from power before you connect or disconnect any electronic peripheral devices (e.g., display unit) to or from the data interfaces.
- ⚠ If there is visible damage to the equipment or power cord, disconnect the equipment from power and replace the weigh cell and electronics module.
- ⚠ If you have any trouble with your weigh cell, contact your local Sartorius office, dealer or service center.

For technical assistance regarding the design, specifications and installation of the equipment, please contact your supplier or the Sartorius hotline:  
Phone: +49 (0) 551.308.4440  
Fax: +49 (0) 551.308.4449

## Installation

- ⚠ Any incoming inspection or installation work that does not conform to the instructions in this manual will result in forfeiture of all claims under the manufacturer's warranty.
- ⚠ All parts of the system must be grounded (earthed), including any draft shields that the customer may use. For this purpose, connect an equipotential bonding conductor.
- Note on installation:  
The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections.  
On request, Sartorius will provide information on the minimum operating specifications (in accordance with the applicable standards for immunity to interference).

# General View of the Equipment



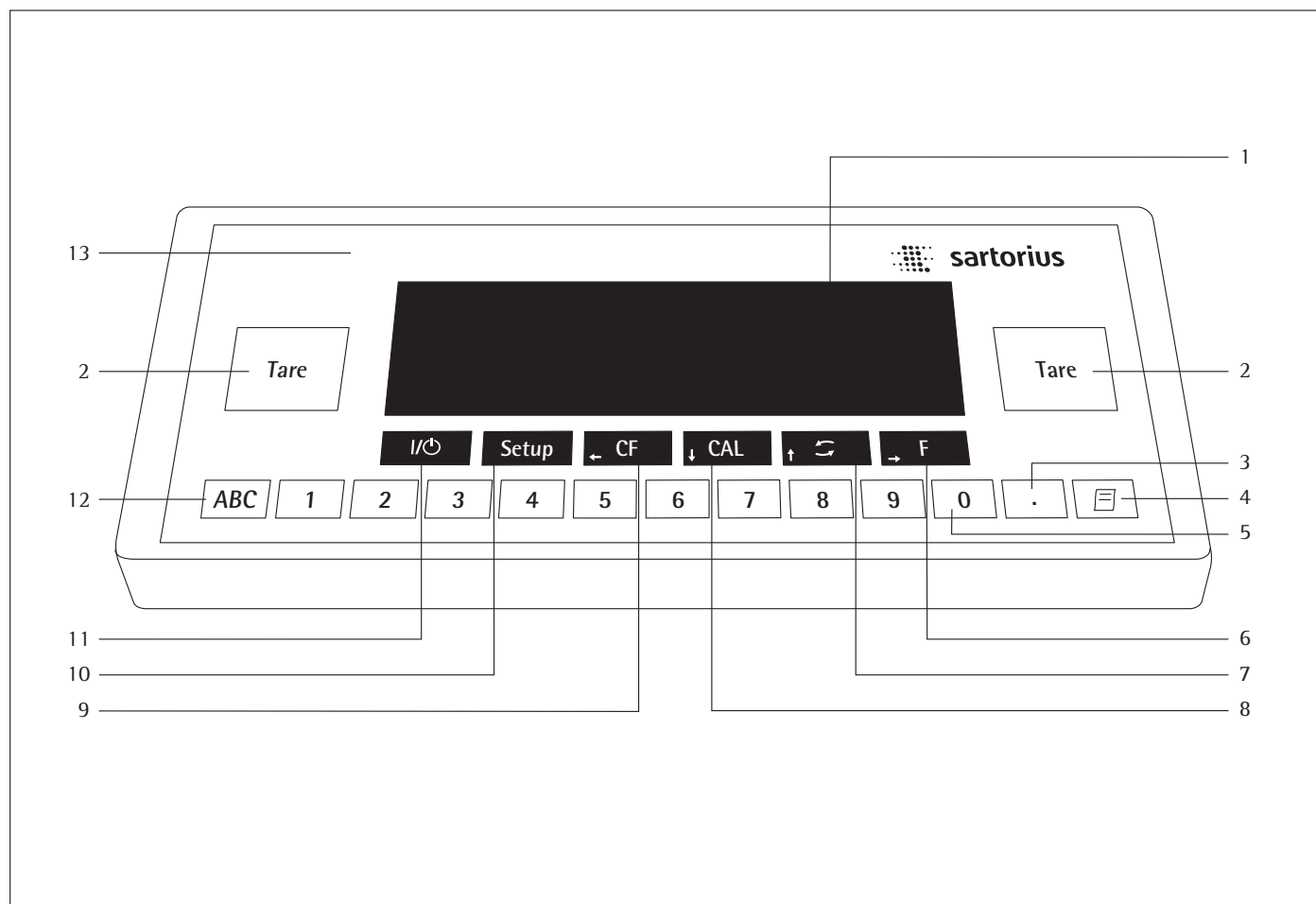
## Pos. Designation

- 1 Load receptor
- 2 Shield disk
- 3 Protective cap/transport locking device
- 4 Leveling foot
- 5 GPC65-CW weigh cell
- 6 Level indicator
- 7 Bore hole for connecting an equipotential bonding conductor
- 8 Connection cable with male connector for the electronics module (length: 1 m)
- 9 Socket for connecting the weigh cell
- 10 Serial printer port (PRINTER)
- 11 Electronics module

## Pos. Designation

- 12 Socket for connecting an optional display and control unit
- 13 DC jack
- 14 Connection cable for optional display and control unit
- 15 Display and control unit
- 16 Evaporation trap (complete)
- 17 Shield disk (exterior)
- 18 Shield disk (interior)
- 19 Reduction fitting
- 20 Pan
- 21 Reduction fitting for beaker (21 ml or 6 ml)
- 22 Beaker (21 ml or 6 ml)
- 23 Evaporation trap
- 24 Cover

# Overview: Display and Control Unit

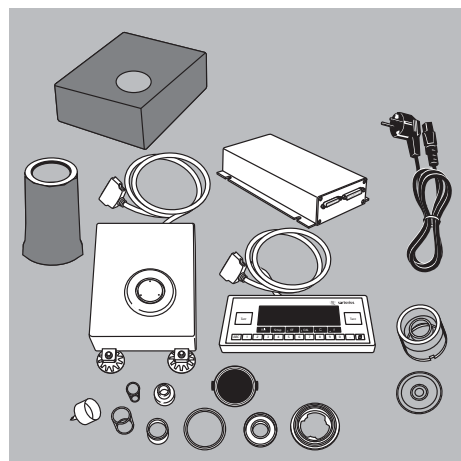


## Pos. Designation

- |    |   |
|----|---|
| 1  | Display   |
| 2  | Tare key  |
| 3  | Decimal point key   |
| 4  | Print key   |
| 5  | Numeric keys  |
| 6  | Function keys   |
| 7  | Toggle key for changing the application program             |
| 8  | Calibration key   |
| 9  | Clear function key/Setup key for configuring the weigh cell |
| 10 | SETUP key for application programs                          |
| 11 | On/off key  |
| 12 | Key for alphabetic input                                    |
| 13 | Display and control unit                                    |

## Equipment supplied

- Weigh cell
  - Electronics module
  - Operating instructions (this document)
  - Display and control unit with 0.5m cable
  - YCP01WZA pipette calibration set
  - Thermal protective covers
- Special accessories, if ordered, as listed on the bill of delivery or in accordance with specific arrangement.



# Installation

The weigh cells are available in various versions. If you have ordered special options, the weigh cells are equipped with the specified features at the factory.

## Storage and Shipping Conditions

- Once the equipment has been removed from the packaging, it may lose accuracy if subjected to strong vibration. Excessively strong vibration may compromise the safety of the equipment.
- Do not expose the equipment unnecessarily to aggressive chemical vapors or to extreme temperatures, moisture, shocks or vibration.
- It is a good idea to save the box and all parts of the packaging until you have successfully installed your equipment. Only the original packaging provides the best protection for shipment.
- Before packing your equipment, unplug all connected cables to prevent damage.
- Do not expose the equipment to gravitational acceleration in excess of  $\pm 300 \text{ m/s}^2$  (unless additional equipment is installed on the load receptor that enables it to withstand this force).

## Incoming Inspection

The customer shall inspect the product and packaging immediately upon delivery for proper functioning, completeness, and absence of defects. This is to be performed in an incoming inspection within 10 days of delivery of the product. The incoming inspection must take place before the equipment is installed. Any obvious defects, errors, or incorrect delivery must be reported in writing. Defects detected at a later date must be reported in writing immediately upon detection.

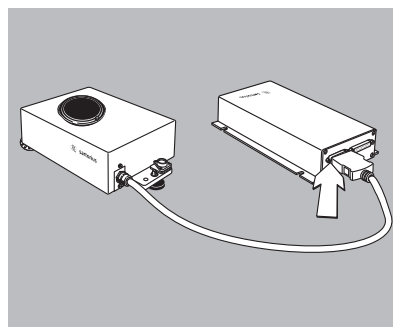
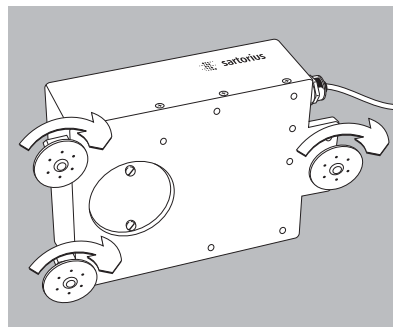
Be sure to perform the following as part of the incoming inspection:

- We recommend performing a repeatability test using an auxiliary draft shield to make sure the weigh cells were not damaged in transport. You can use the display and control unit as an aid for this test.

## Installation Instructions

The equipment is designed to provide reliable results under normal ambient conditions. If you have any questions or difficulties when developing your weighing system, please contact the specialists at Sartorius. When designing and setting up your weighing system, please observe the following so that you will be able to work with added speed and accuracy:

- The protective cap is designed to protect the weigh cell. Always replace the protective cap/transport locking device before transporting the weigh cell.
- △ Following transport, be sure to calibrate the weigh cell prior to performing any measurements.
- Avoid exposing the equipment to the effects of extremely high temperatures; for example, caused by other electronic components, heaters or direct sunlight.
- Protect the equipment from drafts that come from open windows or doors.
- Operate the equipment at a constant temperature.
- Avoid exposing the equipment to excessive vibrations during weighing; for example, caused by motors or valves.
- Protect the equipment from aggressive chemical vapors.
- Do not expose the equipment to extreme moisture.



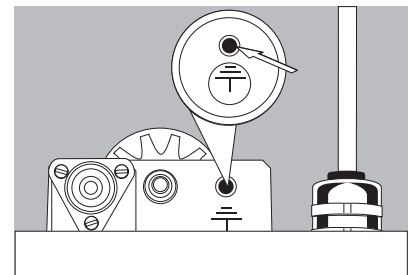
- The assembly on the load receptor is specially designed for pipetting (using 6 ml or 21 ml beakers). Other equipment installed on the load receptor can interfere with weigh cell functions. The operator of the equipment accepts all liability for production release and the overall specifications of the equipment as connected within the particular system. The overall specifications attained by your system may differ from the specifications listed for the weigh cell in these instructions.

## Conditioning the equipment:

Moisture in the air can condense on the surface of a cold weighing instrument or other device whenever it is moved to a substantially warmer place. If you transfer the equipment to warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power.

## GPC65-CW:

An equipotential bonding terminal is provided on the rear of the weighing cell mounting plate. The screw on this terminal is designed for wire diameters of up to 6 mm<sup>2</sup> (unifilar) or 4 mm<sup>2</sup> (stranded wire). Make sure the equipment is grounded to the machine framework.

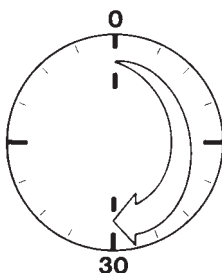
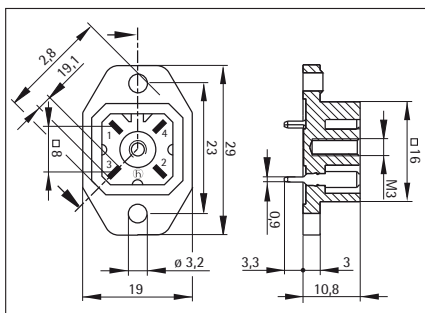
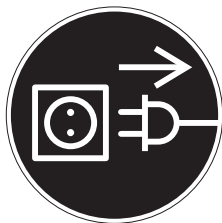
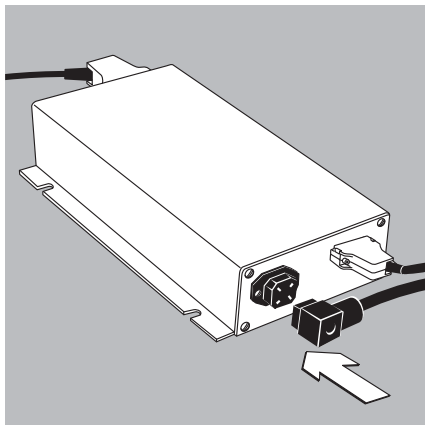
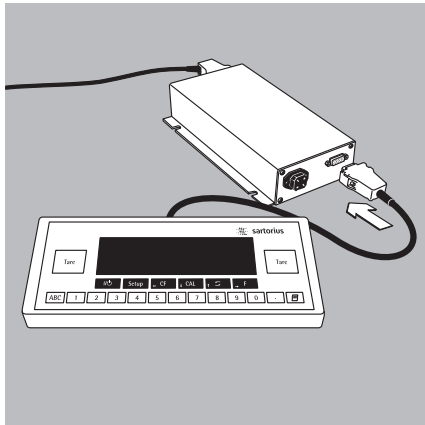


## Installing the Leveling Feet

- Place the weigh cell on its side.
- Insert and turn the leveling feet to attach them to the weigh cell.
- Remove the leveling feet before placing the weigh cell in the optional accessory case for the YDB01WZA25 pipette calibration set.

## Connecting the Weigh Cell to the Electronics Module

- Position the equipment at the location where it will be used.
- Plug the connecting cable into the socket on the electronics module and the male connector on the weigh cell. Make sure the components you connect have identical serial numbers.



### Connecting the Electronics Module to the Display and Control Unit

Important note: Make sure the electronics module is completely de-energized before connecting it to the display and control unit.

- Plug the cable into the socket on the electronics module. Make sure there is no supply voltage. Then connect the components to one another.

### Connecting the Equipment to AC Power

- Check the voltage rating and the plug design. If they do not match your local rating or standard, contact your supplier.  
Use only
  - Original Sartorius AC adapters or power supplies
  - AC adapters or power supplies approved by an authorized technician.

- Insert the right-angle plug from the AC adapter into the jack on the electronics module and tighten the fastening screw.
- Connect the equipment to AC power:  
Plug the AC adapter into the wall outlet (mains).
- Power is supplied over the DC jack. If the voltage specified on the label or the plug design of the AC adapter does not match your local rating or standard, please contact your nearest Sartorius office or dealer.
- Using an AC adapter other than that supplied with the equipment:  
The device can be operated with a supply voltage of 12 V to max. 26 V.

⚠ The power connection must be made in accordance with the regulations applicable in your country.

### Safety requirements for operation of the evaluation electronics connected to a safety extra-low voltage (SELV) source:

The external power supply must meet the requirements of EN 61010- 1, Section 6, "Protection Against Shock Current." Please also refer to the specifications for classification of electrically operated equipment in EN 61010-1.

### Safety Precautions:

The power supply must be rated to safety extra low voltage (SELV) or grounded (earthed) safety extra low voltage (SELV-E). An AC adapter rated to Class 2 can be plugged into any wall outlet with no additional safety precautions required. The ground terminal is connected to the weigh cell housing. The electronics module must be grounded for operation. The data interface is also electrically connected (grounded) to the weigh cell housing.

### EMC requirements:

The connector is designed for DC connections between equipment/systems that are not connected to a DC power supply. The cable length must not exceed 3 m.

To use an external power supply, the power source must meet the requirements of EN61326. The following standards apply:

Fast transients	IEC61000-4-4
Surge voltage	IEC61000-4-5
Conductive HF signals	IEC61000-4-6

### Connecting Electronic Peripheral Devices

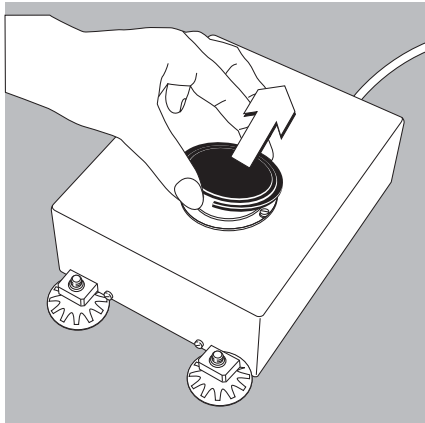
- Make absolutely sure to unplug the weigh cell from AC power before you connect or disconnect a peripheral device (display and control unit or PC) to or from the interface port.

### Warmup Time

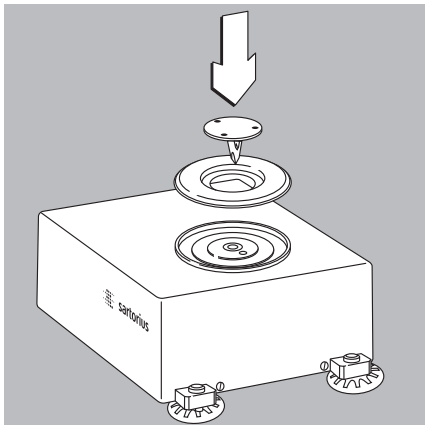
The amount of warmup time required depends in part on the system in which the equipment is installed. To deliver exact results, the equipment must warm up for at least 4 hours after it is connected to power for the first time. Only after this time will the device have reached the required operating temperature.

Important note:

To avoid long warmup periods and ensure that the equipment can be put into operation quickly, we recommend storing and transporting it at a constant temperature of 20°C.



- Remove the protective cap/transport locking device and put it in a safe place for later use.  
Important note:  
This cap is designed to protect the weigh cell. Always replace the protective cap before transporting the weigh cell and any time you pack it for shipment or storage.



- Place the following components onto the weigh cell in the order indicated:

- Shield disk
- Load receptor

#### Leveling the Weigh Cell in a Portable Weighing System (Leveling Feet)

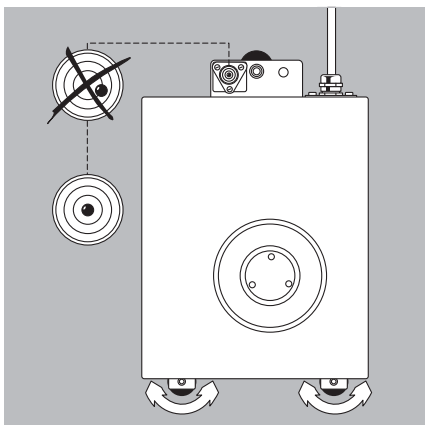
Purpose:

- To compensate for uneven areas at the place of installation
- To ensure that the weigh cell is placed in a perfectly horizontal position for consistently reproducible weighing results
- Always level the weigh cell again any time after it has been moved to a different location.

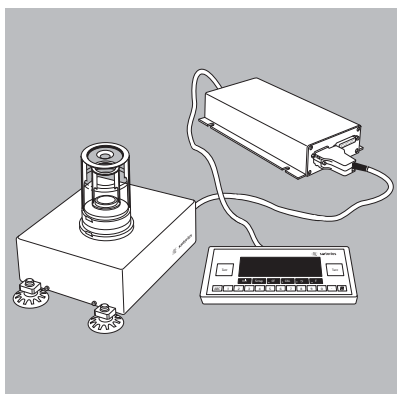
- Leveling feet are included in the equipment supplied. The following leveling feet are available:

- Standard individual leveling foot, product no.: 69B20005
- Design leveling feet (in a set of four), product no.: 69MA0195

- Adjust the leveling feet until the air bubble is centered within the circle on the level indicator.







### Calibrating the GPC65-CW Weigh Cell

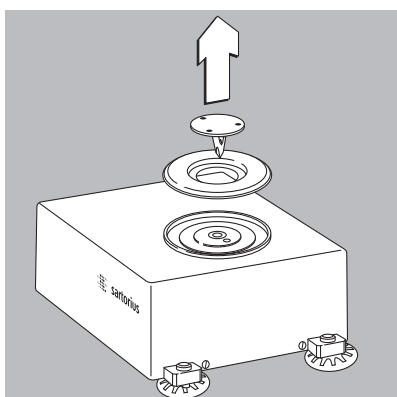
Before the evaporation trap is installed on the load receptor, the weigh cell must be calibrated at the location where it will be used and prior to the first measurement. The evaporation trap together with its lid can be used as a draft shield.

- The weigh cell is set up at the location where it will be used.
- The leveling indicator shows that the weigh cell is level.
- The weigh cell has been allowed to warm up sufficiently.
- For information on calibrating the weigh cell, refer to the chapter entitled “Calibration and Adjustment”

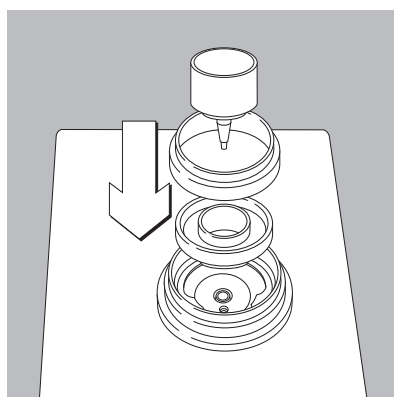
### Installing the Evaporation Trap

Important note:

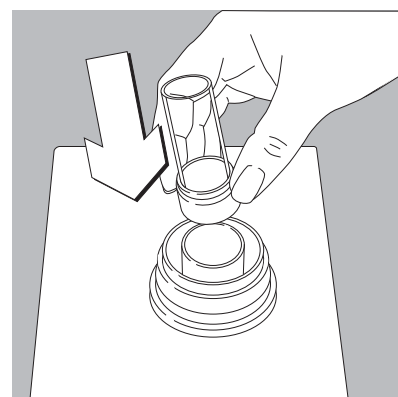
Be sure to wear gloves (see the Accessories section) before installing the evaporation trap. Otherwise, moisture, oil and warmth from your hands can be transferred to the individual parts of the evaporation trap, which could lead to errors in measurement. Keep all parts clean and dry.



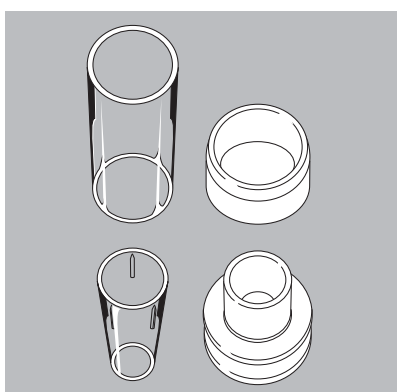
- Remove the shield disk and load receptor from the weigh cell



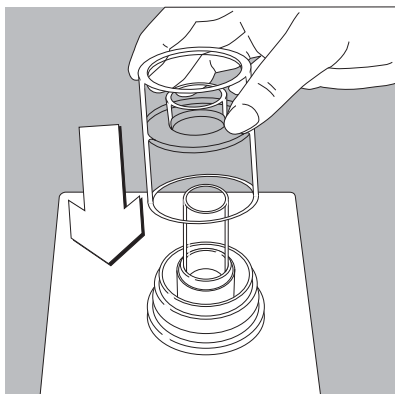
- Place the exterior shield disk on the unit.
- Place the interior shield disk on the weigh cell.
- Place the reduction fitting and weighing pan on the unit.



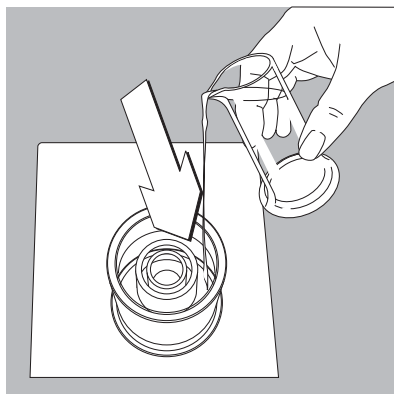
- Place the beaker with its reduction fitting on the weigh cell



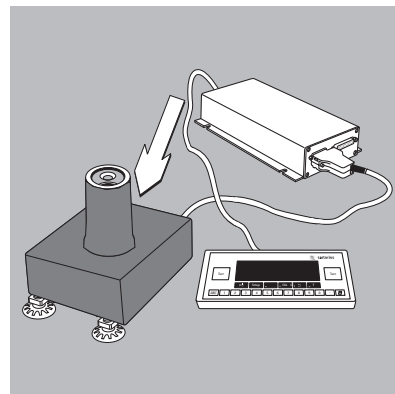
- Select a beaker and a reduction fitting:
  - Beaker, 21 ml
  - Beaker, 6 ml



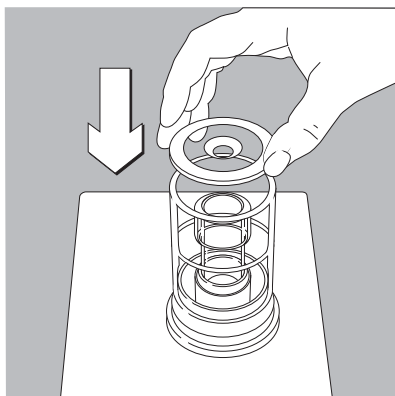
- Place the evaporation trap on the unit.



- Fill the upper ring-shaped pan of the evaporation trap with water.

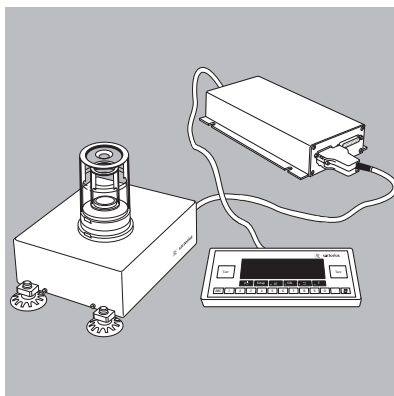


- Pull the thermal protective coverings included in the equipment supplied over the weigh cell and the evaporation trap.

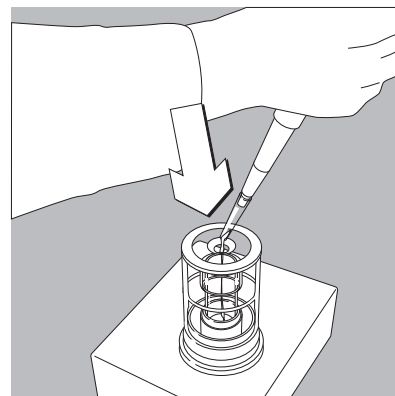


- Replace the lid.

Installation is complete.



**Important note:**  
Once the evaporation trap has been installed, allow the weighing system to rest for a moment so that the components can acclimatize to the ambient conditions.



- You may now begin pipetting.
- Use the pipette for filling procedures.

# Operating Design

The balances in the GPC65-CW Series consist of a weighing cell and a display and control unit. In addition to the choice of power supply (via AC adapter or external rechargeable battery pack), your balance also has an interface port for connecting a printer, computer or universal remote control switch.

The display and control unit and the weighing cell can be set up separately. Operation of GPC65-CW balances follows a uniform “philosophy” which is described in this manual.

## Keys

The functions used most often are assigned to their own specific keys. There are additional keys for assignment of other (multiple) functions, in some cases dependent on the current operating status (so-called “soft keys”). Each key is described in detail in the chapter entitled “Overview” on the CD-ROM.

## Normal Operation

In the operating mode, these four keys function as **[CF]**, **[CAL]**, **[↺]** and **[F]** keys.



## Setup Mode

In the setup mode, these keys take on the function of arrow keys (**[<]**, **[v]**, **[^]** and **[>]**).



## Soft Key Mode

The ‘soft key’ functions depend on the current operating status; the current function is indicated in the text line of the display. In this example, the soft keys are used to access Info, Menu and Input functions.



## Display

The display is divided into six sections:

Line for metrological data	
Bar graph	Weight unit display
Measured value line	
Symbol display	Text line

- Line for metrological data: Metrological specifications of the weighing platform.  
Max ...g d=...g  
Display during use as a legal measuring instrument:  
Max ...g Min ...g e=...g d=...g
- Bar graph: Display in percent of the weight on the balance relative to the maximum capacity and for over/under checkweighing
- Measured value line: Display of weight readout or alphanumeric input

### Important Note Concerning Verified Balances Approved for Use as Legal Measuring Instruments in the EU\*

For verified balances that have a verification scale interval “e” which is greater than the scale interval “d,” the last digit on the display is bordered.

- Weight unit display: Weight unit, other unit of measure, operating information

The **Δ** symbol indicates non-verified weight values.

- Symbol display: Indicates operating status; application selected
- Text line: Prompts for operator guidance, soft key designations

See the “Data Output” section in the chapter entitled “Operation” on the CD-ROM for a detailed description of the information displayed in each of these sections.

\* including the Signatories of the Agreement on the European Economic Area

## Input

### Numeric Input

To enter numbers:

Press the **1** **2** ... **0** **.** keys

To store numbers entered:

Press the soft key

To interrupt/cancel numeric input:

Press **CF**

### Alphabetic Input

To enter letters:

First press the **ABC** key, then press a letter soft key (**^** or **∨**) repeatedly until the desired letter or special character is displayed in the text line

To store a word entered:

Press the soft key

To interrupt/cancel alphabetic input:

Press **CF**

### Configuring Balance Operating Parameters

To set parameter options for configuring your balance, you can select the desired parameters from a list.

The lists of parameter options comprise a menu, which has three levels.

For configuration functions:

Press the **Setup** key; then press the **MENU** soft key

To move within a menu level:

Press **^** or **∨**

To change to another menu level:

Press **<** or **>**

To confirm the selected parameter setting in the 3rd menu level:

Press **>** "o" indicates the currently set parameter

The text line provides additional information. All parameters are listed in the chapter entitled "Configuration" on the CD-ROM.

To save parameter settings and close the menu, press **Setup**.

To interrupt the parameter setting process without saving changes:

Press **U/C**

### Data Output

Your GPC65-CW balance is equipped with a data interface for connecting your choice of the following:

- Printer
- Peripheral device (e.g., computer)
- Universal remote control switch

### Printer

You can configure the print functions to meet your individual requirements by selecting the corresponding menu code.

You can have printouts generated automatically, or by pressing **E**; dependent on or independent of the stability or time parameters; with or without IDs; and as standard or ISO/GLP-compliant printouts.

ISO: International Organization for Standardization

GLP: Good Laboratory Practice

See the section on "Data Output Functions" in the chapter entitled "Operation" for a detailed description of data output options.

### Interface Port

Instead of a printer, you may choose to connect a different peripheral device, e.g. a computer (PC). With an on-line PC you can control both the weighing cell and the display unit of the GPC65-CW balance.

Request messages are sent via the interface to initiate functions in the weighing cell and in the display unit. Some of the functions generate response messages.

See the section on "Data Output Functions" in the chapter entitled "Operation" for a detailed description of the interface port.

### Error Codes

If you press a key that has no function, or which is blocked at a certain point in an application program, this error is indicated as follows:

- a double-beep is sounded as an acoustic signal, and
- where necessary, a message is displayed for 2 seconds in the text line, after which the text line returns to the previous display.

The response to an operator error is identical in all models of the GPC26-CW series. See the chapter entitled "Error Codes" for a detailed description.

### Storing Settings

#### Storing Parameter Settings

The settings configured are stored in the balance's non-volatile memory. The most recent parameter settings are active when you switch on the balance.

#### Saving Parameter Settings

You can assign passwords in order to block access to the "Menu" and "Input" functions.

# Configuration

## Purpose

You can configure the pipette calibration balance to meet individual requirements by entering user data and setting menu parameters in the Setup program. You can also view balance-specific data (such as serial number) in the menu.

## Setting the Language

### Available Features

You can choose from 5 languages for the information display:

- 1 German
- 2 English (factory setting)
- 3 English with U.S. date/time format
- 4 French
- 5 Italian
- 6 Spanish

### Selecting the Language

- Enter the corresponding number
- Press Setup

## 'Info' Display

### Purpose

To have information about the equipment displayed.

### Features

You can have the following information displayed:

- Program version number for the display and control unit
- Program version for the weighing cell
- Balance model
- Serial number of the weighing cell

### Display Balance Information

- Select the Setup menu: Press Setup
- Select information:
  - Press the *INFO* soft (CAL key)
  - > Readout in measured value line: Version number of the display and control unit (see also "Data Output Functions, in the chapter entitled "Operation" on the CD-ROM)
- Select next item of information:
  - Press ▲
  - > Readout in measured value line: Next information
- Select previous information:
  - Press ▼
  - > Readout in measured value line: Previous information
- Print information: Press Print
- > Printout (example)

```
Mod.          GPC...
Ser. no.      60406906
Ver. no.      01-30-13
Software version
(display and control unit)
Ver. no.      00-20-07
Software version (weighing platform)
```

- Exit the Setup menu:
  - Press Setup
  - > Balance returns to previous status

## Entering User Data (Input)

### Purpose

To display, input or change user data. You can block access to these data by assigning a password.

### Features

You can display, input or change the following user data:

- Workstation number\* for the balance: ID (balance ID; max. 20 characters)\*\*
- Weighing series number, to designate a series or lot: L ID (lot ID; max. 20 characters)\*\*
- Weight set number for calibration/adjustment: W ID (weight ID; max. 14 characters)\*\*
- Exact weight value for calibration/adjustment of the balance (see the section on “Calibration and Adjustment,” in the chapter entitled “Operation.”
- Password for access to the Setup menu: Input and Setup: Menu (max. 8 characters)\*\*

## Factory Settings

Password: No designation

If no password has been assigned, anyone can access the “Setup: Input” and “Setup: Menu” functions without entering a password.

If you assign a password and then forget what the word is, you can use the General Password (see Appendix) to access these menus.

### Preparation

Display existing user data

- Select the Setup program: Press **SETUP**
  - > The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line
- Select the user data input function: Press the *INPUT* softkey **F**
  - > The password prompt is displayed
- If access is blocked by a password: enter the password using the alphanumeric input keys
- Display user data: Press the *ENTER PASSW.* soft key **F**
  - > The last 8 digits of a workstation/balance number (ID no.), if any ID is assigned, are displayed in the measured value line

## Enter/Change Password

- Select the Setup menu: Press **SETUP**
  - > The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line
- Select the user data input function: Press the *INPUT* soft key **F**
  - If you have already assigned a password:
    - > The password prompt is displayed
  - Enter the password
  - Press the *ENTER PASSW.* soft key **F**
- Write down the password here:

Password = .....

If you no longer remember the password assigned:

  - Enter the General Password (see Appendix)
  - Press the *ENTER PASSW.* soft key **F**
    - > The last 8 digits of a workstation/balance number (ID no.), if any ID is assigned, are displayed in the measured value line
- Select password setting: Press **↓**
  - > *PASSWORD* is displayed in the text line
  - > If a password exists, it is now displayed in the measured value line
- New password: Enter the letters/numbers for the new password (8 characters max.)\*\*

The password “none” means that no password is stored.\*\*\*
- Confirm input: Press **>**
- Exit the Setup menu: Press **SETUP**
  - > Restart the application



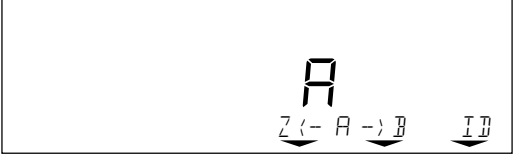

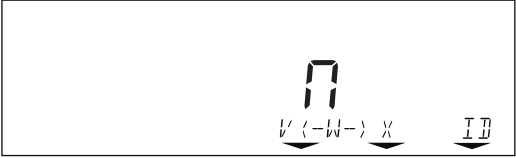







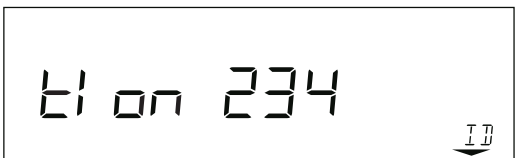

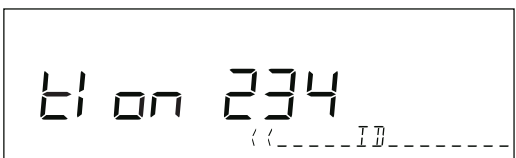

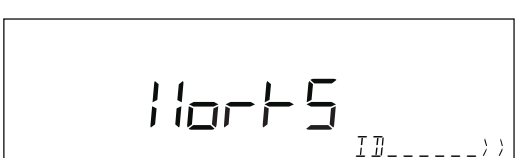
\* Only in conjunction with ISO/GLP-compliant printouts (see the section on “Setting Parameters” in the chapter entitled “Configuration” under menu code number 8 10 x).




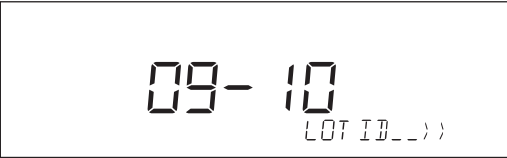






\*\* A decimal point is displayed together with its preceding digit or character; it does, however, count as a separate character. This also applies when you enter S ID and NUM as well as to data entered via the interface.

\*\*\* To delete user password: Enter a decimal point using the **.** key and confirm

### Practical Example

Enter “Workstation 234” as Balance ID; Display and Print Other User Data

Step	Key (or instruction)	Display/Output
1. Select Setup menu, then Input; Display balance workstation ID (in this example: no ID number exists)	see Preparation	
2. Enter the first letter of the balance workstation ID		13th through 20th digits of ID displayed 
3. Set the letter “W”	 repeatedly, until the <i>W</i> is in the middle	
4. Enter the next letter of the balance workstation ID		
5. Select the letter “o”	 repeatedly	
6. Repeat steps 4 and 5 with the appropriate letters (display “longer” values: see “Data Output Functions” on page 54)	  	
7. Store balance workstation ID	ID soft key (  )	
8. Display the 5th through 12th digits of the balance workstation ID		

Step	Key (or instruction)	Display/Output
9. Display lot number (In this example: 09-10-96/ABC1)		13th through 20th digits displayed 
10. Display 5th through 12th digits of lot no.		
11. Display other user data – Weight set no. – Exact calibration weight – Password	   	
12. Print user data (example)		ID      WORKSTATION 234 L-ID    09-10-96/ABC1 W-ID    A-123.456.XY C Cal.wt.    +2000.02
13. Exit “Setup: Input”		



# Parameter Settings (Overview)

## Purpose

To configure the balance; i.e., adapt the balance to individual requirements by choosing from a list of parameter options in a menu. You can block access to this menu by assigning a password.

## Features

The parameter options are divided into the following groups (1st menu level):

- 1 Balance functions
- 2 Application programs
- 3 Application parameters
- 4 +/- parameter  
(for over/under checkweighing)
- 5 Interface parameters
- 6 Print for weighing (print weights)
- 7 Print for application program  
(print app. data)
- 8 Additional functions
- 9 Reset menu

## Factory Settings

The factory-set configurations are marked with an “o” in the chapter “Parameter Settings” on the CD-ROM.

## Preparation










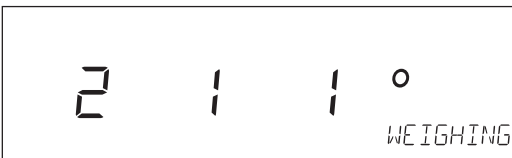


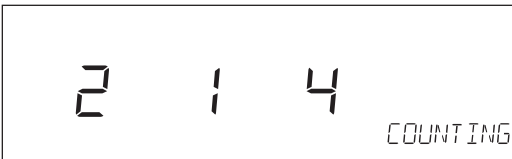

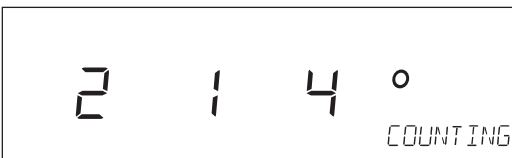





- Select the Setup menu: Press **SETUP**
  - > The *INFO*, *MENU* and *INPUT* soft keys are displayed in the text line
- Select the parameter menu:  
*MENU* soft key **S**
  - > Password prompt is displayed
- Enter password using the alphanumeric input keys
- Confirm password entered:  
*ENTER PASSW.* soft key **F**
  - > Measured value line:  
1 (1st menu level)
  - > Text line: *BALANCE FUNCTIONS*
- Select the next group: Press **^**
- Select the next submenu within a group (2nd menu level): Press **>**
- Select previous group: Press **v**
- Return to next higher menu level: Press **<**

## Additional Functions

- Exit the menu: Press **SETUP**
- > Restart the application
- Print parameter settings:
  - When the 3rd menu level is selected:  
Press **F**
  - > Printout (example)  
4 2 Auto print +/-  
2 Off
  - When the 2nd menu level is selected:  
Press **F**
  - > Printout (example)  
4 Parameter +/-  
-----  
4 2 Auto print +/-  
2 Off  
4 3 +/- ctrl ports  
1 Within ctrl r
  - When the 1st menu level is displayed:  
Press **F**
  - > Prints all of the menu parameters that are currently set

### Practical Example

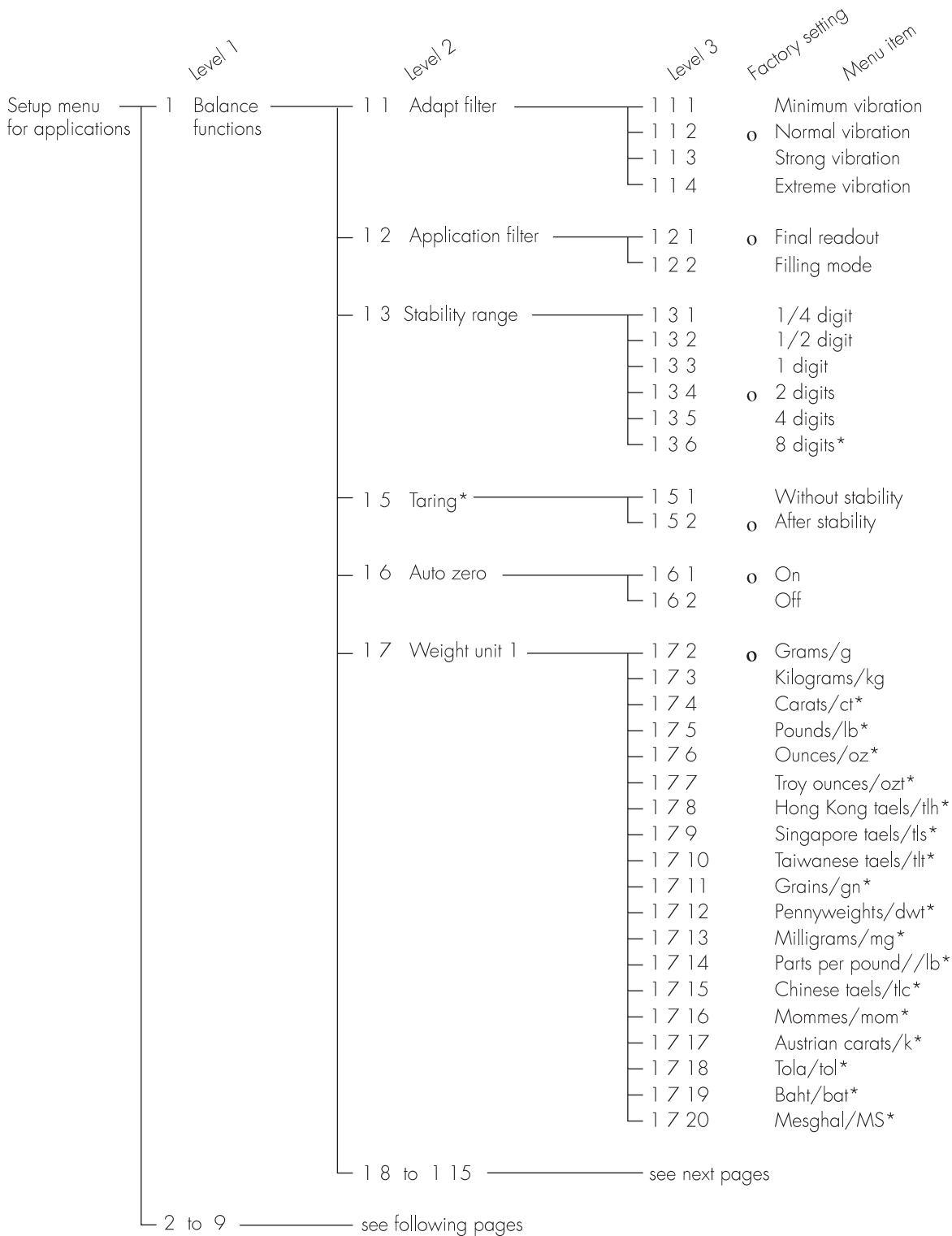
Select the Counting Application Program

Step	Key (or instruction)	Display/Output
1. Select Setup menu		
2. Select Balance Functions group code (Menu)	MENU soft key 	
3. Select the Application Prog. group		
4. Confirm Application Program (2nd menu level)		
5. Confirm App. Selection (3rd menu level shows current setting; in this case: weighing)		
6. Select the Counting program	 	
7. Confirm selection of Counting program		
8. Set other parameters, if desired	   	
9. Save settings and exit menu		

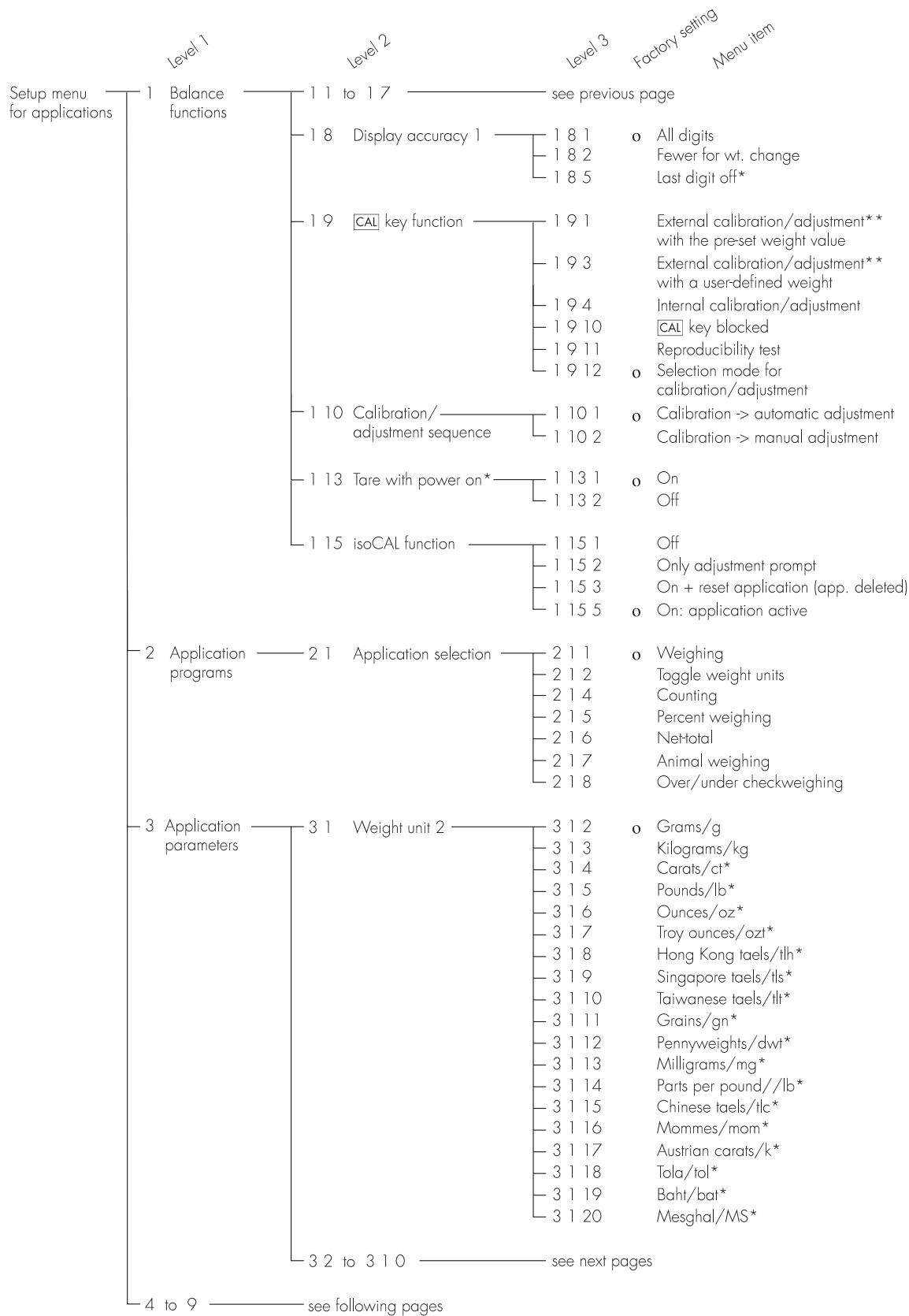
# Menu

## Setup Parameters (Overview)

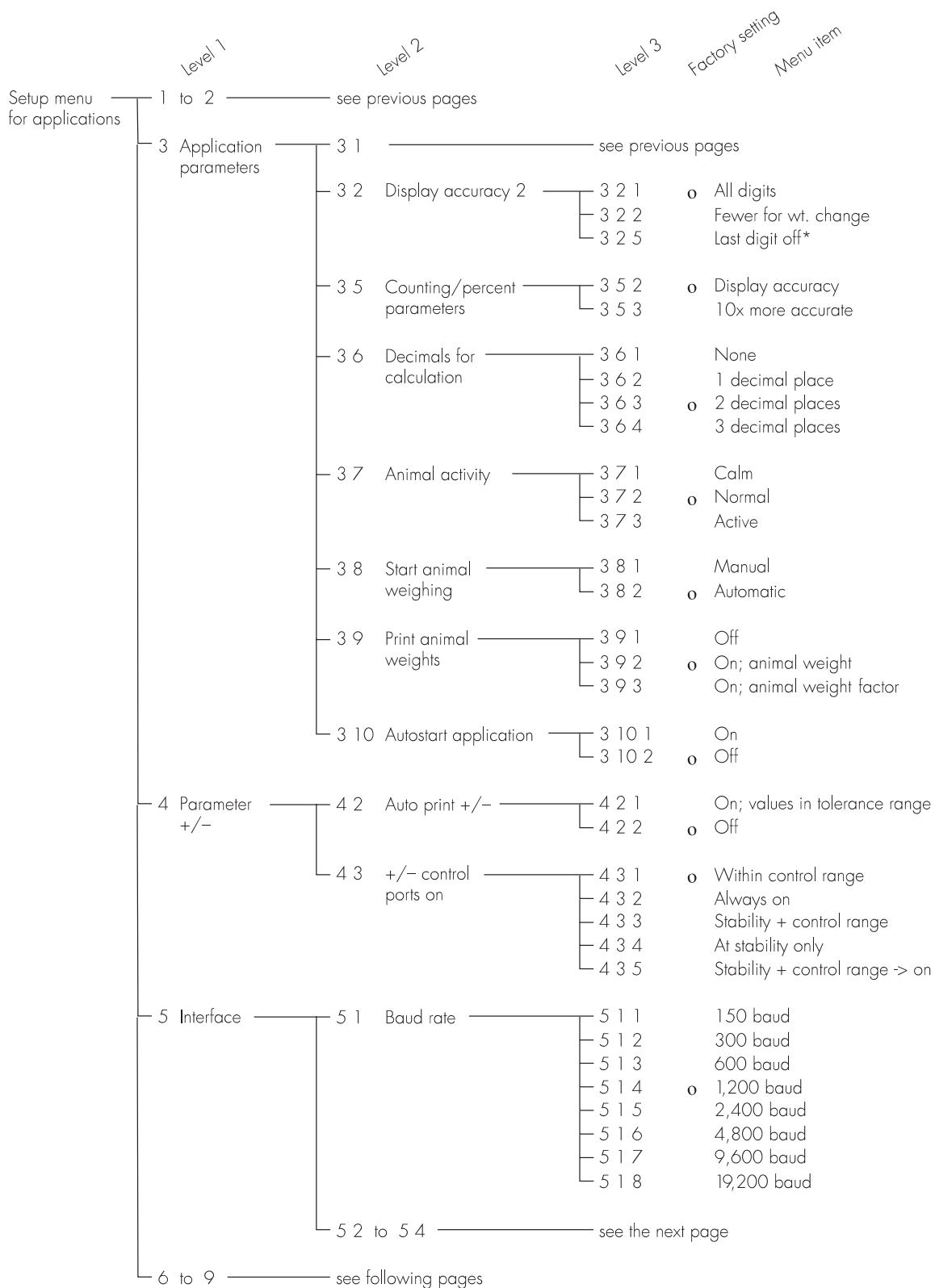
- o Factory setting
- ✓ User setting




\* = setting not applicable in balances verified for use in legal metrology



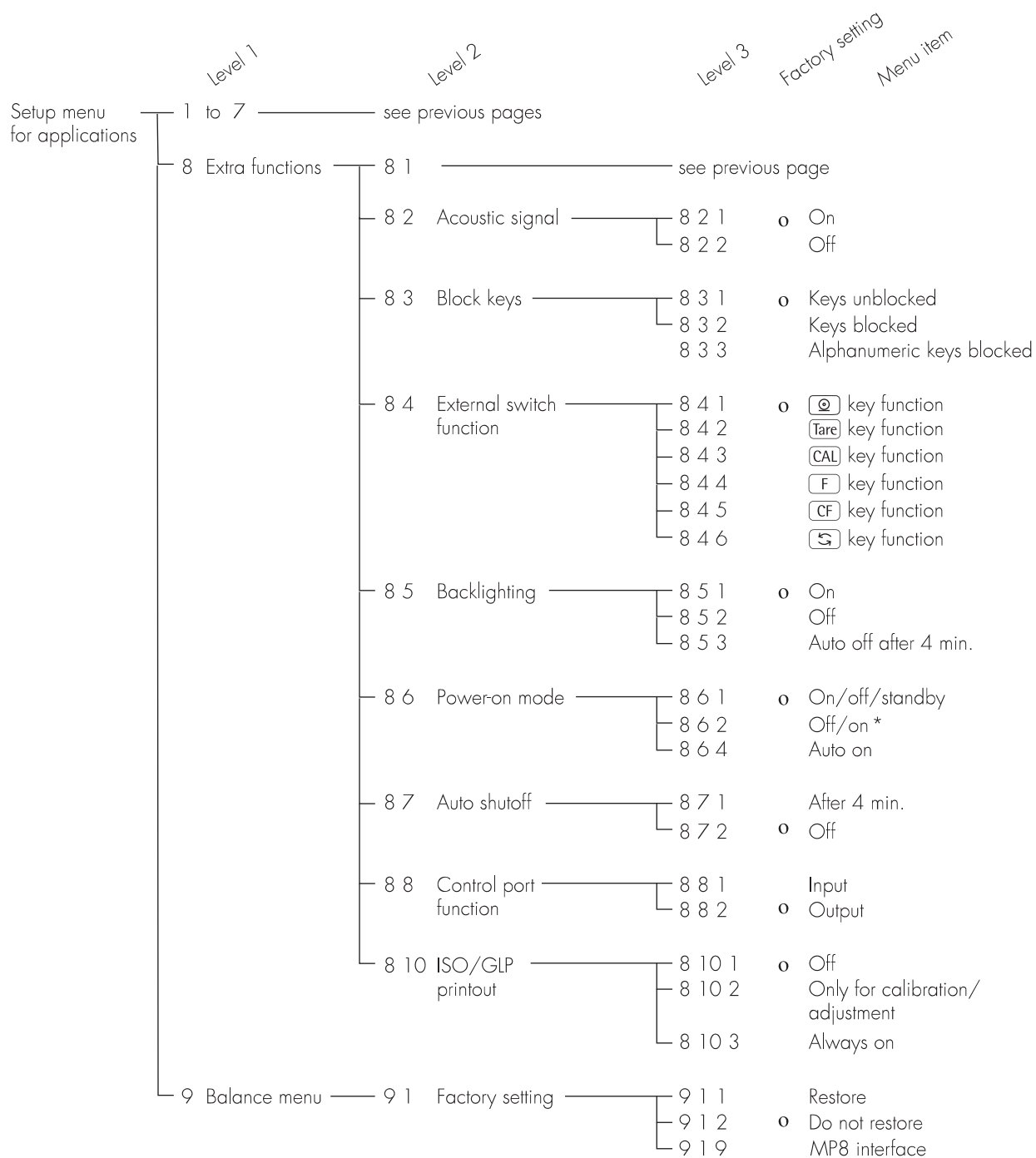
\* = setting not applicable in balances verified for use in legal metrology



\* = setting not applicable in balances verified for use in legal metrology

	Level 1	Level 2	Level 3	Factory setting	Menu item
Setup menu for applications	1 to 4	see previous pages			
	5 Interface	5 1	see previous page		
		5 2 Parity	5 2 2 5 2 3 5 2 4	o Space o Odd o Even	
		5 3 No. of stop bits	5 3 1 5 3 2	o 1 stop bit o 2 stop bits	
		5 4 Handshake mode	5 4 1 5 4 3	o Software handshake o Hardware handshake, 1 character after CTS	
		5 5 Communication mode	5 5 1 5 5 2 5 5 4 5 5 5 5 5 6 5 5 7 5 5 10 5 5 11 5 5 14 5 5 15	o SBI o xBPI o YDP01IS o YDP02 o YDP03 o YDP01IS Label printer o YDP02IS o YDP02IS Label printer o YDP04IS o YDP04IS Label printer	
		5 6 Network address	5 6 1 5 6 x 5 6 32	o Address 0 o Addresses 1 to 30 o Address 31	
6 Print for weighing		6 1 Print manual/ automatic	6 1 1 6 1 2 6 1 4 6 1 5 6 1 6	o Manual without stability parameter o Manual with stability parameter o Auto print without stability parameter o Auto print at stability o Auto print after weight change	
		6 2 Stop auto print	6 2 1 6 2 2	o Use  key o Not possible	
		6 3 Time-dependent auto print	6 3 1 6 3 2 6 3 4 6 3 7	o 1 display update o 2 display updates o 10 display updates* o 100 display updates*	
		6 4 Print -> autotare	6 4 1 6 4 2	o Off o On	
7 Print for application		7 1 Print application parameters	7 1 1 7 1 2 7 1 3	o Off o All parameters o Only main parameters	
		7 2 Line format	7 2 1 7 2 2	o For raw data o For other applications/GLP	
		7 3 Print net total	7 3 1 7 3 2	o Auto print net o Auto print tare	
8 and 9		Balance menu	see next page		

\* = setting not applicable in balances verified for use in legal metrology



# Basic Weighing Function

## Purpose

The basic weighing function is always accessible and can be used alone or in combination with an application program (Toggle between Weight Units, Counting, Weighing in Percent, etc.).

## Features

- Taring the GPC65
- Assigning IDs to weights
- Printing weights
- Printing ID codes for weights

## General Instructions for “Analytical Weighing” with Weigh Cells

### Handling of Samples and Containers

Samples should be acclimatized to the temperature of the weigh cell to avoid negative effects on results, such as measurement errors and fluctuations caused by air buoyancy resulting from convection currents across the surface of the sample.

These negative effects increase as the volume and/or surface area of the sample increases. For this reason, the size of the container should be appropriate for the sample.

Samples and containers should not be touched by the operator's hands, as the hygroscopic effect of fingerprints and the effect of the hand's temperature can influence the measurement results. Samples must be applied very carefully, whether manually (using a forceps) or automatically (by a robot or filling system).

When designing a draft shield device, steps must be taken to keep the increase in temperature within the weighing chamber to a minimum (e.g., using a bypass).

### Weighing Electrostatically Charged Samples or Containers

If a sample or container is electrostatically charged, significant errors may result during weighing. Materials with low conductivity, such as glass, plastic or filters, are particularly susceptible to static electricity (resulting, e.g., from friction) because the weighing pan can discharge the static electricity only very slowly.

The result is a force action between the charge on the sample and the permanently installed parts of the weigh cell. This causes the readout to fluctuate constantly.

Ionization can be applied to make the air around the sample conductive. This allows the charge to be compensated through the air, or discharged through the ground (grounded).

Aside from purely mechanical solutions (e.g., using a special weighing pan to shield the system), bombarding the sample with ions of opposing polarity to neutralize the surface charge is one of the most effective methods for eliminating static electricity. Sartorius can provide ionization devices for installation in weighing systems.

The area around the weigh cell can also contain charges that negatively affect the accuracy of weighing results. Appropriate steps taken in the design of a draft shield device can counteract such effects.

### Weighing Magnetic or Magnetizable Samples

The use of magnetizable materials in the manufacture of weigh cells is unavoidable, primarily because the operating principle of high-resolution weigh cells is based on compensation of the load through magnetic forces.

When weighing magnetic or magnetizable samples or containers, interaction between the sample or container and certain parts inside the weigh cell may distort weighing results.

To keep such distortion to a minimum, we recommend increasing the distance between the sample/container and the weighing system using a non-magnetic material. The force is reduced quadratically with the increase in distance.

Magnetizable or magnetized samples and the weigh cell itself interact with magnetic fields and magnetizable or magnetized parts in the area surrounding the weighing system. The system can be shielded from external magnetic fields to some extent using (soft magnetic) plates.



Factory Settings

Tare: After stability ( *1 5 2* )

Print manual/automatic:

Manual after stability ( *6 1 2* )





Line format for printout:

For other applications/GLP ( *7 2 2* )

Alphanumeric input of a weight ID:

Keys unblocked ( *8 3 1* )

Preparation


- Turn on the balance: Press 
- > All display segments light up briefly
- To change configurations: see the chapter entitled “Configuration” on the CD-ROM
- To load factory-set configurations: see “Configuration” on the CD-ROM, parameter *9 1*
- To tare the balance: Press 
- > The **→0←** symbol is displayed when the balance is zeroed or tared (only on balances verified for use in legal metrology)
- Select the parameters “Line format” and “For other app./GLP” from the Setup menu: Press 
- Select mode: Press the *MENU* soft key
- Set parameter *7 2 2*: See the chapter entitled “Configuration” on the CD-ROM
- Exit the Setup menu: Press 

Additional Functions


In addition to the functions:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing, you can also access the following functions from the weighing application:
- calibration (not during alphanumeric input),
- setup,
- turning off the balance.


Calibration

- Press 
- > See the section on “Calibration/Adjustment” for further instructions.

Setup Menu



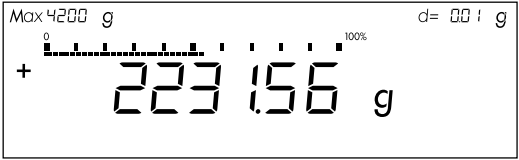

- Press 
- > See the chapter entitled “Configuration” on the CD-ROM for further instructions.

Turning Off the Balance

- Press 
- > The balance shuts off
- > The display goes blank

Practical Examples

Example W1: Simple Weighing

Step	Key (or instruction)	Display/Output						
1. If necessary, tare the balance ( <b>→0←</b> symbol: balance is tared, – verified balances only)								
2. Enter sample ID	see Example W2							
3. Determine sample weight (Example)	Place sample on balance							
4. Print weight		<table><tr><td>S</td><td>ID</td><td>ABC123</td></tr><tr><td>N</td><td>+</td><td>2231.56 g</td></tr></table>	S	ID	ABC123	N	+	2231.56 g
S	ID	ABC123						
N	+	2231.56 g						

Example W2

Enter “ABC123” as a sample ID

Note:

- The sample ID generally applies to one weighing operation only
- The ID is deleted after data output

Step	Key (or instruction)	Display/Output
Initial status (balance unloaded) (ID can also be entered while balance is loaded)		
1. Enter the letter “A”	<span>ABC</span>	
2. Select and enter the letter “B”	<span>ABC</span>	
	Softkey <span>⏏</span> (Key <span>↵</span> )	
3. Select and enter the letter “C”	<span>ABC</span> Softkey <span>⏏</span> (Key <span>↵</span> <span>↵</span> )	
4. Enter the numbers “1,” “2” and “3”	<span>1</span> <span>2</span> <span>3</span>	
5. Store the ID (max. 20 characters)	Press the <span>SP.ID</span> soft key <span>F</span>	

- The next printout will include this ID

---

# Calibration and Adjustment

## Purpose

Calibration is the determination of the difference between the weight readout and the true weight (mass) of a sample. Calibration does not entail making any changes within the balance.

Adjustment is the correction of this difference between the measured value displayed and the true weight (mass) of the sample, or the reduction the difference to an allowable level within the maximum permissible error limits.

## Available Features

Your balance can be calibrated externally (menu item 19 1 or 19 3) or internally (19 4).

External calibration can be performed

- with the pre-set weight value (19 1), or
- with a user-defined weight value (19 3)

Adjustment can be performed

- automatically following calibration (1 10 1); or
- if desired, the adjustment operation can be started manually after calibration (1 10 2)

You can also configure whether the calibration mode


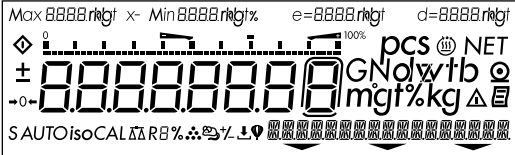











- will be activated according to the specific setting (by setting 19 1, 19 3 or 19 4), or
- can be selected by the user after pressing the **CAL** key (19 12).

You can have the balance automatically display an adjustment prompt after a certain time interval has elapsed since the last calibration/adjustment or when the ambient temperature changes by a defined amount.

You can also configure the balance to perform calibration and adjustment automatically (isoCAL) when the preset time and/or temperature limit is reached (1 15 3 and 1 15 5).

You can have the calibration/adjustment results documented in a ISO/GLP-compliant printout.

Preparation  
Configure Parameters for Calibration and Adjustment

Step	Key (or instruction)	Display/Output
1. Turn on the balance		
2. Select the Setup menu		
3. Select the Balance Functions menu	MENU soft key 	<div></div> <div></div>
4. Set parameters for: <ul style="list-style-type: none"><li>– Calibration key function 1 9</li><li>– Calibration/adjustment sequence 1 10</li><li>– isoCAL self-calibrating and adjustment function 1 15</li></ul> See the chapter entitled “Configuration”	   	
5. Exit the Setup menu		

### Selecting the Calibration/Adjustment Parameter








The setting **19 12** must be selected in the Setup menu.

You can configure the balance so that after selecting a calibration procedure by pressing the **[CAL]** key, you can choose among the following calibration/adjustment modes:

- External calibration/adjustment with the pre-set weight value (**DEF.EXT.ADJ.**)
- External calibration with a user-defined weight value (**USER.EXT.ADJ.**)
- Internal calibration (**INT.ADJUST**)
- Reproducibility test (**REPROTEST**)

When making your selection, the available modes are displayed in cycles; i.e., after **REPROTEST**, **DEF.EXT.ADJ.** is displayed again

### Configure External Calibration and Automatic Adjustment of the Balance in Selection Mode

Step	Key (or instruction)	Display/Output
1. Select the calibration function	<b>[CAL]</b>	
2. Select external calibration/adjustment mode	Press the <b>SELEC.</b> soft key three times <b>[F]</b>	
3. Confirm external calibration/adjustment mode	Press the <b>USER.EXT.ADJ.</b> soft key <b>[CAL]</b>	
4. Place the calibration weight on the balance (e.g., 4000.00 g) Minus sign -: Weight too low Plus sign +: Weight too high No plus/minus sign: Weight o.k.	Place weight on balance	
This is displayed after calibration: (on verified balances, the display shows the difference between the weight readout and the actual weight value)		
This is displayed after adjustment:		
5. Unload the balance	Remove weight(s)	

External Calibration/Adjustment with a User-Defined Weight

First set either 193 or selection mode (1912) in the menu.

You can define a weight for calibration/adjustment. External calibration/adjustment must be performed with weights that are traceable to a national standard and that have error

limits which are at least 1/3 of the required tolerance of the display accuracy.

The balance has a factory-set weight value (see “Specifications”).

To reset a user-defined calibration/adjustment weight to the original factory setting, enter the factory-set weight value manually (see “Specifications”) or set menu code 191 in the Setup menu.

Define the Calibration Weight

Step	Key (or instruction)	Display/Output
1. Select the Setup menu	Setup	
2. Access the Input Mode	INPUT soft key [F]	
3. Select input for calibration weight (currently 3000.00 g)	[^] [^] [^]	
4. Enter calibration weight (e.g., 4000.00 g)	[4] [0] [0] [0] [.] [0] [0]	
5. Save weight	... WEIGHT soft key [F]	
6. Exit the Setup menu	Setup	

### Internal Calibration/Adjustment

The menu code setting 194 must be selected in the Setup menu.

Inside the balance housing is a built-in, motorized calibration weight.

The internal calibration/adjustment sequence is as follows:

- Select the calibration function:  
Press **CAL**
- > The internal calibration weight is applied automatically
- > The balance is calibrated
- > If the setting for “Calibration automatically followed by adjustment” (1101) is selected in the Setup menu, the balance is now automatically adjusted
- > The internal calibration weight is removed

**Calibration and Adjustment Sequence**  
In the Setup menu, you can configure the balance so that:

- calibration is always followed automatically by adjustment  
(CAL. → AUTOADJUST. 1101), or
- you have the choice of ending the sequence or starting adjustment after calibration  
(CAL. → MAN. ADJUST. 1102).

If no deviation is determined during calibration, or the deviation is within the tolerance limits dictated by the degree of accuracy you require, it is not necessary to adjust the balance. In this case, you can end the calibration/adjustment sequence after calibration. There are 2 soft keys active at this point:

- **EXT. ADJUST** or **INT. ADJUST** to start adjustment
- **END** to end the sequence

### isoCAL:

#### Automatic Calibration and Adjustment

Either 1153 or 1155 must be selected in the Setup menu.

The “isoCAL” display automatically begins flashing if the ambient temperature has changed in relation to the temperature at the time of the last calibration/adjustment, or after a defined time interval has elapsed. The balance is telling you that it wants to self-calibrate and adjust.

This adjustment prompt is activated when:

- The change in temperature or the elapsed time interval is greater than that shown in the table below
- The balance status does not correspond to Setup configurations
- No number or letter input is active
- The load on the pan has not been changed within the last 2 minutes
- The balance has not been operated within the last 2 minutes
- The weight on the pan must be no more than 2% at the most of the maximum capacity of the balance

When these requirements are met, the following symbols are displayed:

- **⎓** in the measured value line
- **isoCAL** in the symbol display
- **⚠** in the weight unit display

If the balance is not operated and the load is not changed, internal calibration and adjustment starts after 15 seconds have elapsed.

In the Setup menu, you can configure the balance so that after calibration and adjustment

- the application program must be restarted  
(ON + RESET APP. 1153), or
- the application program resumes where it left off (ISO CAL ON. 1155)

In the Setup menu, you can also configure the balance so that it displays an adjustment prompt, but does not perform the calibration/functions automatically (ONLY ADJ. PROMPT. 1152)

Determination of the Repeatability (reproTEST)

**Definition**  
Repeatability (reproducibility) is the ability of the balance to display identical readouts when it is loaded several times with the same weight under constant ambient conditions. The standard deviation for a given number of measurements is used to quantify the repeatability.

**Purpose**  
The “reproTEST” function automatically calculates the repeatability of results (based on 6 individual measurements). In this way, the balance determines one of the most important quantities in relation to the place of installation. The results are displayed with the balance’s accuracy.

- Preparation**
- Turn on the balance: Press **ON**  
> All display segments light up briefly
  - Select reproTEST in the Setup menu: Press **SETUP**
  - Select Menu: Press **↵** (MENU softkey)
  - Select either **19 11** (reproTEST) or **19 i2** (selection mode): See “Configuring the Balance.”
  - Exit the Setup menu: Press **SETUP**

Check the Reproducibility of the Balance

Step	Key (or instruction)	Display/Output
1. If parameter <b>19 11</b> is set (reproTEST), proceed with step 4.		
2. Access the Selection Mode for calibration/adjustment	<b>CAL</b>	
3. Select reproTEST	<b>SELEC.</b> soft key <b>F</b>	
4. Start reproTEST Number of measurements is displayed 6 measurements will now be performed	<b>CAL</b>	
The standard deviation is displayed		
5. End reproTEST or restart reproTEST	<b>END</b> soft key <b>F</b> <b>REPROTEST</b> soft key	



# Application Programs

All application programs can be selected on balances used as legal measuring instruments.

Non-metric vales are indicated as follows:

- Percent = %
- Piece count (counting) = pcs
- Computed value = o

## Toggle between Weight Units

### Purpose

With this application program you can switch the display of a weight value back and forth between two weight units by pressing a soft key.

### Available Features

- Toggling the displayed weight
- Setting the display accuracy
- Other features as for the basic weighing function

### Factory Settings

Weight unit 1: Grams/g ( 1 7 2 )  
 Display accuracy 1 (in the 1st range): All digits ( 1 8 1 )  
 Weight unit 2: Grams/g ( 3 1 2 )  
 Display accuracy 2 (in the 2nd range): All digits ( 3 2 1 )

## Preparation

The following weight units are available in both ranges:

Unit	Conversion factor	Display	Printout
Grams	1.000000000000	g	g
Kilograms	0.001000000000	kg	kg
Carats*	5.000000000000	ct	ct
Pounds*	0.00220462260	lb	lb
Ounces*	0.03527396200	oz	oz
Troy ounces*	0.03215074700	ozt	ozt
Hong Kong tael*	0.02671725000	tl	tlh
Singapore tael*	0.02645544638	tl	tls
Taiwanese tael*	0.02666666000	tl	tlt
Grains*	15.43235835000	GN	GN
Pennyweights*	0.64301493100	dwt	dwt
Milligrams*	1000.000000000000	mg	mg
Parts per pound*	1.12876677120	o	/lb
Chinese tael*	0.02645547175	tl	tlc
Mommes*	0.26670000000	o	mom
Austrian carats*	5.00000000000	o	K
Tola*	0.08573333810	o	tol
Baht*	0.06578947436	o	bat
Mesghal*	0.21700000000	o	MS

### The following levels of display accuracy are available in both ranges:

- All digits
- Fewer for weight change
- Last digit off (reduced by 1 digit)
- Turn on the balance: Press
  - > All segments of the display light up briefly
- Configure the “Toggle between Weight Units” application in the Setup menu: Press
- Select the configuration mode: Press (MENU soft key)
- Set the parameter 2 1 2: See the chapter entitled “Configuration”
- Exit the Setup menu: Press

### Setting Weight Unit 1

- Access the Setup menu: select *MENU*

- Set the parameter for weight unit 1 ( 1 7 2 through 1 7 2 0 ): See “Configuration”

- Set display accuracy 1 ( 1 8 1 through 1 8 5 ): See “Configuration”

### Setting Weight Unit 2

- Access Setup: select *MENU*

- Set the parameter for weight unit 2 ( 3 1 2 through 3 1 2 0 ): See “Configuration”

- Set display accuracy 2 ( 3 2 1 through 3 2 5 ): See “Configuration”

- Exit the Setup menu: Press

\* = not applicable in balances verified for use in legal metrology

## Additional Functions

- In addition to the functions for:
- alphanumeric input,
  - taring  
(not during alphanumeric input),

printing, you can also access the following functions from this application:

- calibration  
(not during alphanumeric input),
- setup,
- turning off the balance.

### Calibration/Adjustment

- Press **[CAL]**
- > See “Calibration/Adjustment” for further instructions

### Setup (setting parameters)

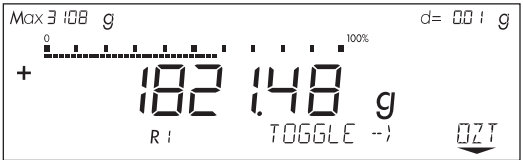
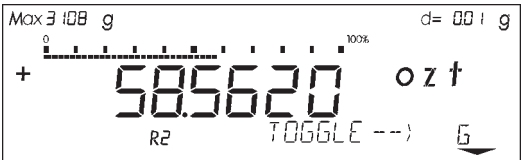
- Press **[SETUP]**
- > See “Configuration” for further instructions

### Turning Off the Balance

- Press **[I/O]**
- > The balance shuts off
- > The display goes blank

## Practical Example

Toggle the Display From Grams [g] (1st Unit) to Troy Ounces [ozt] (2nd Unit)


Step	Key (or instruction)	Display/Output
(R1: weight unit 1)		
1. Toggle to Troy ounces [ozt] (R2: weight unit 2)	TOGGLE soft key <b>[F]</b>	
2. Toggle to grams [g]	G soft key <b>[F]</b>	

# Counting

## Purpose

With the Counting program you can determine the number of parts that each have approximately equal weight.

## Available Features

- Reference sample quantity “nRef” loaded from long-term memory when you turn on the balance
- Optional balance configuration in the Setup menu for automatically initializing this application and loading the most recent reference sample quantity “nRef” and average piece weight “wRef” when you turn on the balance (automatic initialization; menu code 3 10 1)
- Minimum load checked when the balance is initialized (factory setting: 10 display increments; can only be changed by the Sartorius FastFactory)
- Reference sample quantity “nRef” entered using the keys
- Average piece weight “wRef” entered using the keys
- Storage parameter (level of accuracy with which the average piece weight “wRef” is stored) for piece count calculation can be configured
- Optional configuration for having the piece count and average piece weight output automatically via the data interface port after initialization or reference sample updating while running the Counting program (print application parameters)
- Long-term storage of the last reference sample quantity “nRef” entered
- Long-term storage of the last average piece weight “wRef” entered with the corresponding reference sample quantity “nRef,” by configuring automatic initialization
- Toggling between two weight units by pressing 
- Counting program initialized again after using the balance for weighing (after initialization)

## Factory Settings

Auto-start application (automatic initialization with reference sample quantity and average piece weight loaded from long-term memory): off (3 10 2)

Counting/percent parameter (accuracy when storing average piece weights): display accuracy (3 5 2)


Printout application parameters (automatic output of application parameters): off (7 1 1)


## Preparation

To calculate a piece count, the average weight of one piece must be known. This average piece weight can be entered into the Counting program in one of three ways:

- The last reference sample quantity entered is loaded and displayed when you turn on the balance. Place the same number of parts on the balance and initialize the counting program;
- With automatic initialization switched on, the balance goes into the “counting” mode when you turn it on and loads the last average piece weight and corresponding reference sample quantity that were entered or calculated;
- Enter the average piece weight using the numeric keys and store it.



## Reference Sample Updating

When the  soft key is displayed during counting, this means you can have the average piece weight updated (while the piece count is displayed in the measured value line).

The  soft key is displayed when:



- the balance has reached stability
- the current piece count is less than double the original piece count
- the current piece count is less than 100
- the internally calculated piece count (e.g., 17.24 pcs) differs from the nearest whole number (here: 17 pcs) by less than 0.3

Reference sample updating can be repeated several times with an approximately doubled piece count.


- To perform reference sample updating: Press  ( soft key)

- Turn on the balance: Press 
  - > All display segments light up briefly


- Select the Counting program in the Setup menu: Press 

- Select menu: Press the  soft key (


- Set parameter 2 14: See “Configuration”

- Exit the Setup menu: Press 

Setting Parameters for the Counting Application

- Access the Setup menu: Select 

- Set parameters for:
  - Storage accuracy: 3 5 COUNT/PCT.PARAM.
  - Automatic initialization: 3 10 AUTO-START APP.
  - Automatic output of parameters to interface port: 7 1 PRINT APP.PARAM.
 See “Configuration”


- Exit the Setup menu: Press 

## Additional Functions


In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing, you can also access the following functions from this application:
  - calibration (not during alphanumeric input),
  - setup,
  - turning off the balance.


Calibration/Adjustment

- Press 
  - > See “Calibration/Adjustment” for further instructions

Setup (setting parameters)

- Press 
  - > See “Configuration” for further instructions



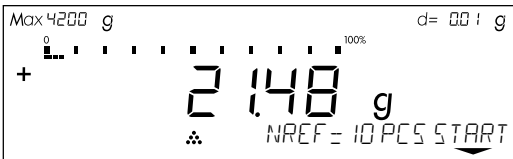

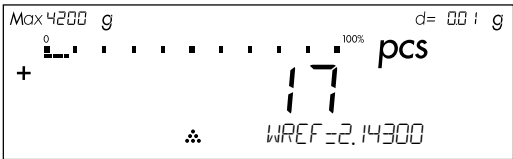

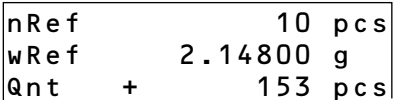
Turning Off the Balance

- Press 
  - > The balance shuts off
  - > The display goes blank

## Practical Example

Counting with: Preset Reference Sample Quantity Weighed In

(Parameter settings: Counting program: 2 1 4; Print all parameters: 7 1 2)


Step	Key (or instruction)	Display/Output
1. Select the counting application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container	
3. Tare the balance	on the balance (Tare)	
4. Place reference sample quantity on the balance (example: 10 pcs, each weighing 2.148 g)	Place the displayed number of parts in the container	
5. Initialize the balance (the number of digits following the decimal point depends on the balance model)	START soft key (F)	
6. If necessary, increase number of parts and update the reference sample (here: 7 more pieces)	Place parts in container UPDAT soft key (F)	
7. Weigh uncounted parts	Place parts to be counted in container	
8. If desired, print total piece count (here: 153 pcs)	(F)	

# Weighing in Percent %

## Purpose

This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.

## Available Features

- Reference percentage “pRef” loaded from long-term memory when you turn on the balance
- Optional balance configuration in the Setup menu for automatically initializing this application and loading the most recent reference percentage “pRef” entered with reference weight “w100%” when you turn on the balance
- Minimum load checked when the balance is initialized (factory setting: 10 display increments; can only be changed by the Sartorius FastFactory)
- Reference percentage “nRef” entered using the numeric keys
- Reference weight “Wxx%” entered using the numeric keys
- Storage parameter (rounding-off factor) for storing the reference weight “W100%” to calculate the percentage can be configured
- Configuration of decimal places displayed with a percentage
- Optional configuration for having the reference weight “Wxx%” and reference percentage automatically output via the data interface port after initialization of the weighing-in-percent program (print application parameters)
- Long-term storage of the last reference percentage “pRef” entered
- Long-term storage of the last reference weight “W100%” entered, by configuring automatic initialization (auto-start)
- Toggle between two weight units by pressing 

## Factory Settings

Auto-start application (automatic initialization with reference percentage and reference weight loaded from long-term memory): off (3 10 2)

Counting/percent parameter (accuracy when storing reference weights): display accuracy (3 5 2)

Number of decimal places displayed in “weighing in percent” mode: 2 decimal places (3 6 3)


Printout application parameters (automatic output of application parameters): off 7 1 1)


## Preparation

To calculate a value in percent, the reference percentage must be known. This value can be entered into the weighing-in-percent program in one of three ways:

- The last reference percentage entered is loaded and displayed when you turn on the balance. Place the corresponding weight on the balance and initialize the weighing-in-percent program;
- With automatic initialization switched on, the balance goes into the “weighing in percent” mode when you turn it on and loads the last reference percentage entered as well as the corresponding reference weight;
- Enter the reference weight using the numeric keys and store it (w 100% soft key).

- Turn on the balance: Press 
  - > All display segments light up briefly

- Select the Weighing-in-Percent application in the Setup menu: Press 

- Select menu:
  - Press the *MENU* soft key (

- Set parameter 2 1 5:
  - See “Configuration”

- Exit the Setup menu: Press 

Setting Parameters for the Weighing-in-Percent Application

- Access the Setup menu: Select *MENU*

- Set parameters for:
  - Storage accuracy:  
3 5 COUNT/PCT.PARAM.
  - Decimal places displayed:  
3 6 DECIMALS F.CALC.
  - Automatic initialization:  
3 10 AUTO-START APP.
  - Automatic output of parameters to interface port:  
7 1 PRINT APP.PARAM.

See “Configuration”


- Exit the Setup menu: Press 

## Additional Functions


In addition to functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing, you can also access the following functions from this application:
  - calibration (not during alphanumeric input),
  - setup,
  - turning off the balance.


Calibration/Adjustment

- Press 
  - > See “Calibration/Adjustment” for further instructions

Setup (setting parameters)






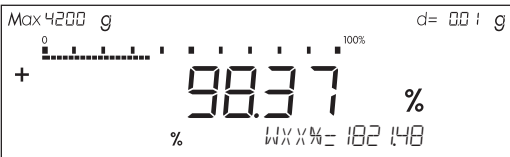
- Press 
  - > See “Configuration” for further instructions

Turning Off the Balance



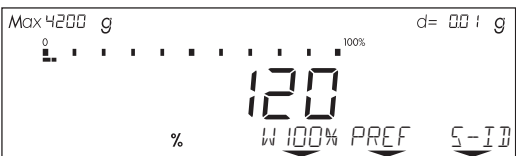


- Press 
  - > The balance shuts off
  - > The display goes blank

## Practical Examples

### Example P1: Weighing in Percent with Reference Weight Taken from Weight on Balance

Step	Key (or instruction)	Display/Output
1. Select the weighing-in-percent application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container on the balance	
3. Tare the balance	<b>[Tare]</b>	
4. Place the reference weight on the balance (here: 1821.48 g = 100%)	Place weight equal to reference weight in the container	
5. Initialize the balance	<b>START</b> soft key <b>[F]</b>	
6. Unload the balance	Remove reference weight from the container	
7. Determine the percentage of an unknown weight	Place sample to be measured in the container	
8. If desired, print percentage (here: 98.37%)	<b>[E]</b>	<div> <div>pRef</div> <div>Wxx%</div> <div>Prc</div> <div>100 %</div> <div>1821.48 g</div> <div>+ 98.37 %</div> </div>

Example P2: Weighing in Percent with Reference Weight Entered Using the Numeric Keys

Step	Key (or instruction)	Display/Output
1. Select the weighing-in-percent application in the Setup menu	see "Preparation"	
2. Prepare a container for the parts	Place the empty container on the balance	
3. Tare the balance	<span>Tare</span>	
4. Enter the reference weight using the numeric keys (here: 120 g)	<span>1</span> <span>2</span> <span>0</span>	
5. Store the reference weight	$\overline{W}$ 100% soft key <span>CAL</span>	
6. Determine the percentage of an unknown weight	Place sample to be measured in the container (in this case: 114.78 g)	

# Net-Total Formulation ↓

## Purpose

With this application program you can weigh in different components up to a defined total. You can also print out the total weight and the individual weights of the components.

## Available Features

- Taring
- Weighing different components (maximum: 99 components) from "0" to a defined total component weight
- Storing component weights ("Store xx comp."), with
  - display zeroed after value stored, and
  - automatic printout (print application parameters);  
either
    - of the last component weight (net value) or
    - of the total weight (tare value)
- Display of the transaction counter "XXth" (referring in each case to the next component) in the soft key label display
- Clearing of the component memory when the weighing series is canceled (CF) and printout of the total weight if you have configured the balance for GLP-compliant printouts; otherwise, printout of the net value (F)
- Toggling between component weight and total weight by pressing (S).
- ISO/GLP-compliant printout of the total of the individual component weights (Tot . cp)

## Factory Settings

Automatic printout when component value stored: print net total (7 3 !)

## Preparation

- Turn on the balance
  - > All display segments light up briefly
- Select the Net Total application in the Setup menu: Press (SETUP)
- Select menu:  
Press the MENU soft key ((S))
- Set parameter 2 1 6:  
See "Configuration"
- Exit the Setup menu:  
Press (SETUP)  
  
Setting Parameters for the Net-Total Application
- Access the Setup menu: Select MENU
- Set the parameter for automatic printout when component stored  
7 3 PRINT NET TOTAL  
See "Configuration"
- Exit the Setup menu: Press (SETUP)

## Additional Functions

In addition to functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- setup,
- turning off the balance.

## Calibration and Adjustment

- Press (CAL)
- > See "Calibration and Adjustment" for further instructions

## Setup (setting parameters)

- Press (SETUP)
- > See "Configuration" for further instructions

## Turning Off the Balance







- Press (U/Φ)
- > The balance shuts off
- > The display goes blank



### Practical Example

Weighing in Several Components

(Parameter settings: Net-total application program 2 1 5; print all parameters 7 1 2)


Step	Key (or instruction)	Display/Output
1. Select the net-total application in the Setup menu	see "Preparation"	
2. Prepare a container for the components	Place the empty container on the balance	
3. Tare the balance	<b>[Tare]</b>	
4. Add first component	Place the first component in the container	
5. Store component value	<i>I.COMP</i> soft key <b>[F]</b>	<div>Comp1 + 952.48 g</div> 
6. Add next component	Place next component in the container	
7. Store component value	<i>2.COMP</i> soft key <b>[F]</b>	<div>Comp1 + 952.48 g Comp2 + 2837.12 g</div>
8. If desired, add further components	Repeat steps 6 and 7 as needed	
9. Display total weight	<b>[G]</b>	

# Animal Weighing



## Purpose



Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. In this program, the balance calculates the weight as the average of a defined number of individual weighing operations. These weighing operations are also known as “subweighing operations.”


## Available Features

- Animal weighing started manually or automatically
- Optional balance configuration in the Setup menu for automatically initializing this application when you turn on the balance
- Minimum load threshold for starting animal weighing:
  - 100 display increments for automatic start
  - 50 display increments for manual start
- Start range: Automatic start of animal weighing operation when three successive subweights lie within a user-defined tolerance range (calm = 2%, normal = 5%, active = 10%)
- Number of weighing operations for calculation of an average *MDEF* can be set before the beginning of each animal weighing operation
- Arithmetic average displayed as a result in the pre-set weight unit (identified by the  $\Delta$  symbol)
- Optional multiplication of the arithmetic average by a user-defined factor *MUL*. A circle “o” is displayed as weight unit and *MUL=XXXX* is shown in the text line
- Toggling between weighed and calculated results by pressing 
- Automatic output via the interface port:
  - Number of weighing operations **mDef**
  - Multiplication factor **MuL**
- Automatic output of results via the interface port:
  - Weighing result **x-Net**
  - Calculated result **x-Res**
- Stop limit: Unload threshold (50 display increments)
- Return to weighing mode by unloading the balance; i.e., when the load is below the stop threshold







## Factory Settings

Auto-start application (automatic initialization with automatic start of animal weighing): off (3 )  
Animal activity (3 subweights lie within a preset range; i.e., animal is calm, normal or active): normal (3 )






Start animal weighing: automatic (3 )  
Automatic printout of number of weighing operations used in averaging and of the calculation factors: off (7 )

Print animal weights (automatic printout of weighed or calculated result):  
On: animal wt. (3 )

## Preparation

- Turn on the balance: Press 
  - > All display segments light up briefly
- Select the animal weighing application in the Setup menu: Press 
- Select menu:  
Press the *MENU* soft key ()
- Set parameter 2  1 :  
See “Configuration”
- Exit the Setup menu: Press 

Setting Parameters for the Animal Weighing Application


- Access the Setup menu: Select *MENU*
- Set parameters for:
  - Start range:  
3  *ANIMAL ACTIVITY*
  - Start animal weighing  
3  *START ANIMAL WGH.*
  - Printout of results and calculated results:  
3  *PRINT ANIMAL WTS.*
  - Automatic output to interface port:  
7  *PRINT APP.PARAM.*  
See “Configuration”
- Exit the Setup menu: Press 

## Additional Functions

In addition to functions for:

- alphanumeric input (not when automatic start is configured or after animal weighing has been started),
- taring (not during alphanumeric input),
- printing, you can also access the following functions from this application:
- calibration (not during alphanumeric input or after animal weighing has been started),
- setup (not after animal weighing has been started),
- turning off the balance.


## Calibration/Adjustment

- Press 
  - > See “Calibration and Adjustment” for further instructions

## Setup (setting parameters)

- Press 
  - > See “Configuration” for further instructions

## Turning Off the Balance









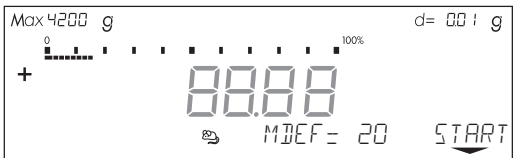

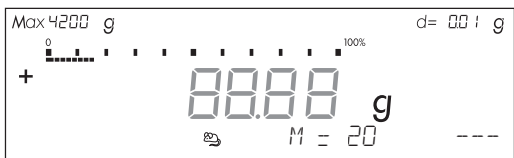
- Press 
  - > The balance shuts off
  - > The display goes blank

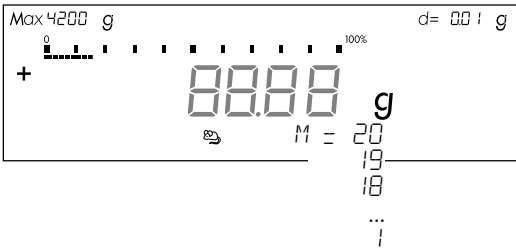

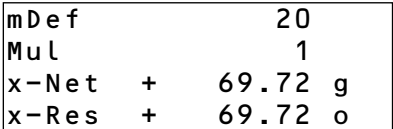

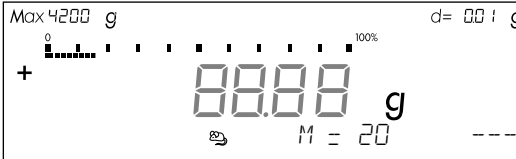
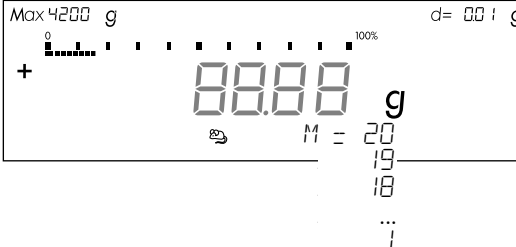
## Practical Example

See next page

### Practical Example

Determining Animal Weight with Automatic Start of 20 Subweighing Operations for Averaging;  
Automatic Printout of the Number of Subweighing Operations and of the Animal Weight

Step	Key (or instruction)	Display/Output
1. Select the animal weighing application in the Setup menu	see "Preparation"	
2. Set the following animal weighing parameters in the Setup menu: – Animal activity: Active – Start animal weighing: Automatic – Printout: On: anim.wt.*fact. – Print: All parameters	Setting 3 7 3 in Setup menu Setting 3 8 2 in Setup menu Setting 3 9 3 in Setup menu Setting 7 1 2 in Setup menu	
3. Prepare a container (cage)	Place empty cage on	 The balance display shows a weight of 432.06 g. The top left corner indicates 'Max 4200 g' and 'the balance'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.
4. Tare the balance		 The balance display shows 0.00 g. The top left corner indicates 'Max 4200 g'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.
5. Enter number of subweighing operations for averaging	 	 The balance display shows the number 20. The top left corner indicates 'Max 4200 g'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.
6. Save number	MDEF soft key 	 The balance display shows 0.00 g. The top left corner indicates 'Max 4200 g'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.
7. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity  The balance display shows 0.00 g. The top left corner indicates 'Max 4200 g'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.
8. Start automatic animal weighing	START soft key 	 The balance display shows 0.00 g. The top left corner indicates 'Max 4200 g'. The top right corner shows 'd= 001 g'. The bottom right corner has 'START'.

Step	Key (or instruction)	Display/Output
The balance delays starting the subweighing operation until three successive subweights lie within the range defined for an “active” animal	When this criterion is met, the subweighing series begins	
After 20 subweighing operations (mdef: no. of subweighs) Mul: Calculation factor XNET arithm. average, net value)		 
8. Unload the balance	Remove animal from cage	
9. If desired, weigh next animal	Place animal in cage	
Next weighing series begins automatically		

# Checkweighing $\pm$

## Over/Under Checkweighing $\pm$ Purpose

This program is used to check whether a sample corresponds to a pre-set target value or is within a specific tolerance range. In addition to the display in the measured value line, the results are shown on the bar graph and can also be routed through the interface port via control lines for further electronic processing.

## Available Features

- Lower tolerance limit (minimum), target value and upper limit (maximum) stored in long-term memory
- Optional balance configuration in the Setup menu for automatically initializing this application and loading the values stored in long term memory for the target value and the upper and lower tolerance limits when you turn on the balance
- Enter target value and limits by placing a load on the balance or using the numeric keys
- Control in entering target and tolerance values, so that the upper limit  $\geq$  the target  $\geq$  the lower limit  $\geq 1$  display increment
- Accuracy of a weight readout or keyboard input as target/tolerance value stored corresponds to the display accuracy
- Optional balance configuration in the Setup menu for automatic output to the interface port (print application parameters) of target value and tolerance limits when initialization is completed
- Control range for the balance's data output port lines is 30% to 170% of the target value
- Control range can be set anywhere from 10% to infinity. Control lines set when stability is reached within the control range; deleted only when you exit this application
- Optional configuration in the Setup menu for activation of control lines independent of weight value (weight within control range, stability reached)
- Toggling the display between weight readout and control (checkweighing) display by pressing  $\boxed{F}$ . If the weight value exceeds tolerances, the measured value line shows the weight while the control display shows "LL" for "too low" or "HH" for "too high."
- Toggle the text line display between weight value and control display, nominal value "SETP" and tolerance values "MIN" and "MAX" by pressing the  $\boxed{S}$  key.
- Weight displayed on bar graph in relation to upper and lower limits and target value.
- Optional automatic printout of weight when it is within the control range at stability (AUTO PRINT +/-).

After an automatic printout, the balance is blocked. Before you can generate the next printout, you must unblock the balance by unloading it (weight must be under 30% of the target) or by placing a load on the balance (bringing the weight up to at least 170% of the target).

- Press  $\boxed{CF}$  to delete the initialization parameters and end the over/under checkweighing program

## Factory Settings

Auto-start application (automatic initialization with target value and tolerance limits loaded from long-term memory): off (3  $\rightarrow$  2)

Automatic output of target value and tolerance limits via the interface port (print application parameters): off (7  $\rightarrow$  1)

Auto print +/- (automatic printout of a weight when it is within the control range at stability): off (4  $\rightarrow$  2)

Control lines +/- on (activating data output port lines):  
Within control range (4  $\rightarrow$  1)

### Preparation

The checkweighing program requires a target value for comparison to the current value. This target has a tolerance range, which is defined by absolute weight values: upper and lower limits. These limits can be entered either by storing weights on the balance or via key input.

There are four control lines, called data output port lines, which are activated as follows: (see also the diagram at the right):

- lighter
- equal
- heavier
- set

The control range spans 30% to 170% of the target value. You can configure this parameter in the Setup menu (4 3 +/- CTRL PORTS ON) to select whether the control lines are:

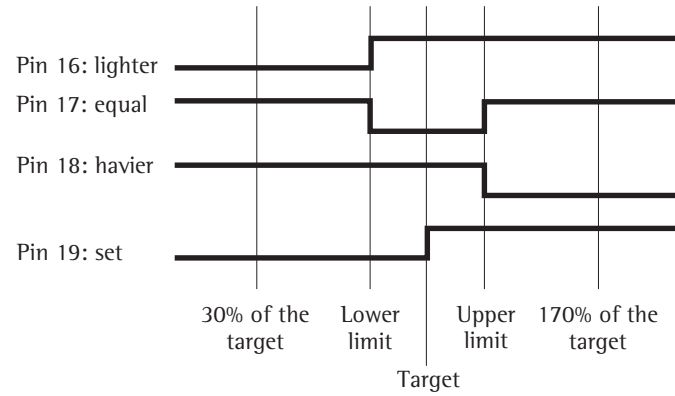
- always on
- activated within the control range
- activated at stability
- activated at stability within the control range

This makes it possible, for example, to connect a simple indicator for the weighing results (e.g., three different colors, one each for the weighing results: too light, O.K., too heavy).

### Response of Control Lines During Checkweighing

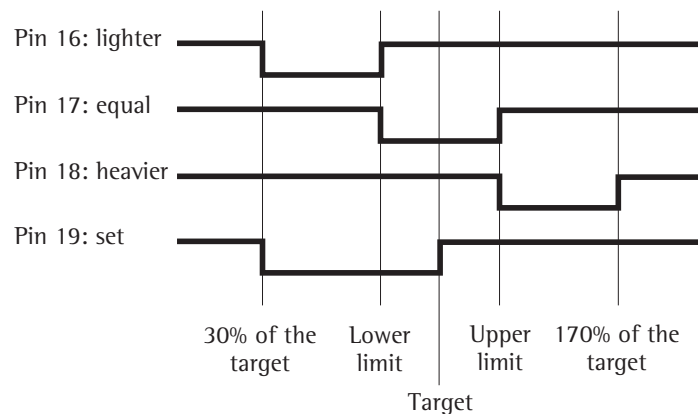
Configurations:

- always on
- activated at stability



Configurations:

- activated within control range
- activated at stability within control range



Output port specifications

- When not in use, the voltage level is high:  $>2.4\text{ V}/+2\text{ mA}$
  - When in active use, the voltage level is low:  $<0.4\text{ V}/-2\text{ mA}$ .
- ⚠ The output ports are not protected against short circuits!

## Control Line Response in Checkweighing

Settings for

- always activated
- activated at stability

Settings for

- activated within checkweighing range
- activated at stability within checkweighing range

- Turn on the balance: Press **ON/OFF**  
> All display segments light up briefly

- Select the over/under checkweighing application in the Setup menu:  
Press **SETUP**

- Select menu:  
Press the **MENU** soft key (**☰**)

- Set parameter **2 1B**:  
See "Configuration"

- Exit the Setup menu: Press **SETUP**

Setting Parameters for the Over/Under Checkweighing Application

- Access the Setup menu: Select **MENU**

- Set parameters for:
  - Automatic initialization when balance switched on:  
**3 10 AUTO-START APP.**
  - Automatic printout when weight value is within limits and balance at stability:  
**4 2 AUTO PRINT +/-**
  - Control lines on:  
**4 3 +/- CTRL PORTS ON**
  - Automatic output of initialization values to interface port:  
**7 1 PRINT APP. PARAM.**
  - Signal direction for data output port lines:  
**8 8 1 INPUT** or  
**8 8 2 OUTPUT**  
See "Configuration"

- Exit the Setup menu: Press **SETUP**

## Additional Functions

In addition to functions for:

- alphanumeric input (not during initialization),
- taring (not during alphanumeric input),
- printing, you can also access the following functions from this application:
- calibration (not during alphanumeric input or during initialization),
- setup (not during initialization),
- turning off the balance.

Calibration/Adjustment

- Press **CAL**  
> See "Calibration and Adjustment" for further instructions

Setup (setting parameters)






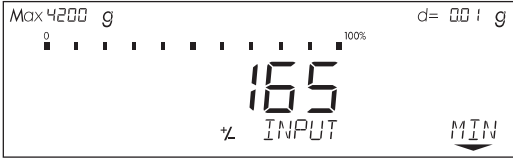
- Press **SETUP**  
> See "Configuration" for further instructions

Turning Off the Balance

- Press **ON/OFF**  
> The balance shuts off  
> The display goes blank

### Practical Example

Checkweighing samples of 170 g, with an allowable tolerance of -5 g and +10 g. Printout of upper and lower tolerance limits. Weighed values printed out automatically when stability is reached and weight is within the control range.

Step	Key (or instruction)	Display/Output
1. Select the checkweighing application in Setup	see "Preparation"	
2. Set the following checkweighing parameters in the Setup menu: - Auto print +/-: On: values in tol. - Print app. param.: All parameters	See "Configuration"	
3. Prepare a container for the sample	Place empty container on the balance	
4. Tare the balance	<b>Tare</b>	
5. Enter initialization values	<b>START</b> soft key <b>F</b>	
6. Store target value (here: 170 g)	Place ideal sample in container	
7. Store target value and unload balance	<b>SETP</b> soft key <b>F</b> Remove ideal sample from balance	
8. Enter value for lower limit (170 g - 5 g)	<b>1</b> <b>6</b> <b>5</b>	



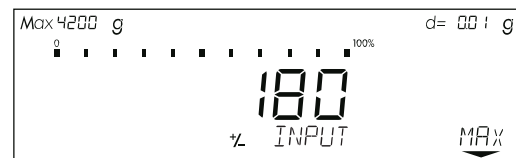
9. Store lower limit value

MIN soft key **[F]**



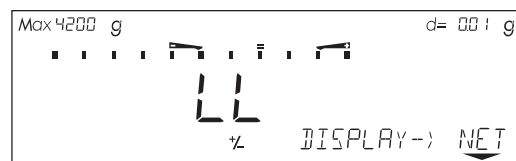
10. Enter value for upper limit  
(170 g + 10 g)

**[1]** **[8]** **[0]**



11. Store upper limit value

MAX soft key **[F]**

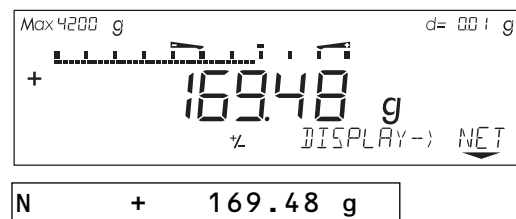


12. Weigh sample  
(in this case 169.48 g)

Place sample in container

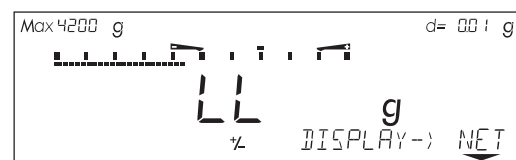
Setp	+	170.00 g
Min	+	165.00 g
Max	+	180.00 g

If the weight had been too low, the display would have shown the following:



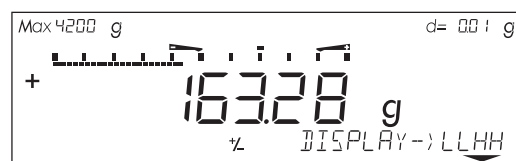
13. In this case, switch to net value display (in this case: 163.28 g)

NET soft key **[F]**



14. Weigh next sample (if any)

Place sample in container



# Recalculation

## Purpose

With this application program you can compensate for over-poured components in formulation.

If a component is over-poured when weighing in the individual formulation components, the mixture already poured cannot be used in its current composition. To avoid having to discard the materials weighed, you can adjust the proportions of the formulation to compensate for the over-pour.

When you use this application, the recalculation procedure is mainly performed by the balance.

## Available Features

- Individual components (up to 99) weighed in with a readout showing from “0” to the desired component weight
- Transaction counter shows the next component expected
- Weighed components are stored, followed by automatic printout and taring
- Additive weighing of components with printout
- Toggle the display between component weight and total formulation weight (additive mode) after first component is stored
- Stored component weight displayed as true net weight for 2 seconds
- Enter a divisor before or during component weighing. For example, if the formulation has a total weight of 100 g, enter the divisor 10 to weigh in a total formulation of 1,000 g.
- If a component is over-poured, you can use the recalculation function to change the amount of this component indicated in the formulation by using plus or minus keys or numeric input. A factor is then calculated by which all components amounts are then adjusted.

- Recalculation factor displayed in the text line, with a warning symbol if the factor is not equal to 1.
- All components displayed with number and the amount (by weight) to be added in follow-on filling. Components displayed in sequence by the balance.
- Display of actual net weight during follow-on filling
- After the amounts of the components already weighed have been corrected, weighing continues according to the adjusted formulation amount. The readout is recalculated (updated) according to the divisor.
- You can repeat the over-pour correction procedure as often as necessary, in case other components are over-poured.
- After follow-on (corrective) filling, the total amount differs from that given for the formulation, but the proportion of components in relation to each other is the same.
- You can have the weight printed after each measurement
- Choose whether the current component weight or the tare value is printed after each measurement
- Individual component weights are printed as “Comp $\overline{\text{xx}}$ .”
- Press  $\boxed{\text{CF}}$  to exit the application program. The component memory is cleared and the sum of components printed as “S-Comp.”

## Factory Settings

Print application parameters (automatic output of application parameters):  
off (7 1 !)

Line format: for other apps/GLP (7 2 2)

## Preparation

- Turn on the balance: Press  $\boxed{\text{U/}\psi}$ 
  - > All display segments light up

- Select the Recalculation application in the Setup menu: Press  $\boxed{\text{SETUP}}$

- Select menu:  
Press the menu soft key ( $\boxed{\text{S}}$ )

- Set parameter 2 1 9:  
see “Configuration”

- Exit the Setup menu: Press  $\boxed{\text{SETUP}}$

Setting Parameters for the Recalculation Application

- Access the Setup menu: Select *MENU*

- Set parameters for:
  - Automatic printout:  
7 1 PRINT APP.PARA.
  - Line format:  
7 2 LINE FORMATsee “Configuration”

- Exit the Setup menu: Press  $\boxed{\text{SETUP}}$

## Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input), and
- printing, you can also access the following functions from this application:
  - calibration (not during alphanumeric input)
  - setup
  - turning off the balance.

Calibration/Adjustment

- Press  $\boxed{\text{CAL}}$ 
  - > See “Calibration and Adjustment” for further instructions

Setup (setting parameters)

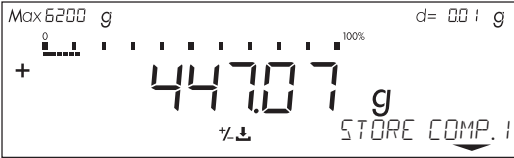
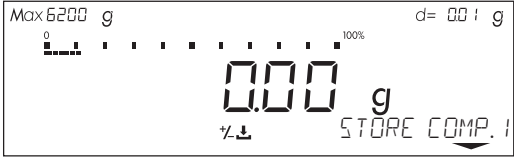
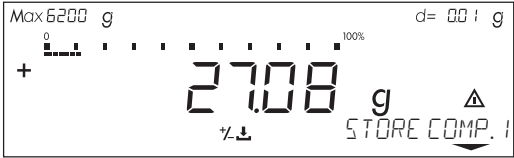




- Press  $\boxed{\text{SETUP}}$ 
  - > See “Configuration” for further instructions

Turning Off the Balance

- Press  $\boxed{\text{U/}\psi}$ 
  - > The balance shuts off
  - > The display goes blank

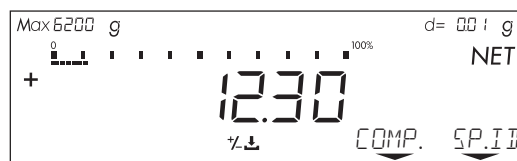
### Practical Example

When weighing in formulation components, the second component is over-poured.  
(Parameter settings: Recalculation application: 2 1 9; Print all parameters: 7 1 2)

Step	Key (or instruction)	Display/Output
1. Select the recalculation application in the Setup menu	see "Preparation"	
2. Place container for filling components on the balance	Place empty container on the balance	
3. Tare	<b>Tare</b>	
4. Add the first component	Weigh the first component into the container	
5. Store component	Press the <b>COMP. 1</b> soft key ( <b>COMP. 1</b> )	
6. Add the second component	Weigh the second component into the container	
7. Start recalculation, because 12.42 g were poured rather than 12.30 g	<b>RECAL</b> soft key ( <b>RECAL</b> )	
8. Either press the minus key to correct the value...	<b>MINUS</b> soft key repeatedly	

... or enter the desired value

**1** **2** **.** **3** **0**

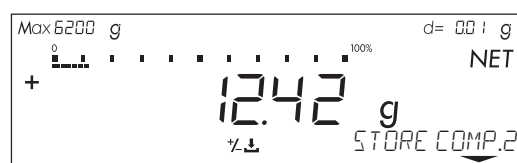


9. Confirm the new value  
or **COMP.** soft key (**F**)

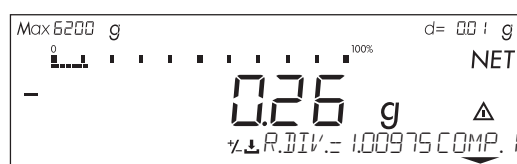
**COMP.2** soft key (**F**)

Comp1 +	27.08 g
Comp2 +	12.42 g
R.div +	1.00975

The true net value is displayed  
for 2 seconds



Follow-on filling amount for  
first component is displayed



10. Follow-on filling of 1st component  
up to 0 and store

Weigh the first component  
**COMP.1** soft key (**F**)

Comp1 +	27.08 g
Comp2 +	12.42 g
R.div +	1.00975
RCom1 +	27.34 g

The true net value is displayed  
for 2 seconds



11. Weigh in further components,  
if called for in the formulation

Repeat steps 4 and 5  
as needed

12. Toggle to the additive mode,  
if required

**ADD.** soft key (**F**)



13. Add further components,  
as required ...  
(here, e.g., up to the total weight  
of the formulation: 1,000 g)

Add components to container



14. ... and store  
(here, e.g., the 6th component)

ADD.6 soft key (F)

Comp1	+	27.08	g
Comp2	+	12.42	g
R.div.	+	1.00975	
RCom1	+	27.34	g
Comp3	+	18.39	g
Comp4	+	31.49	g
Comp5	+	107.50	g
Comp6	+	812.61	g

The true net value (of the 6th component) is displayed for 2 seconds



Then the total weight is displayed

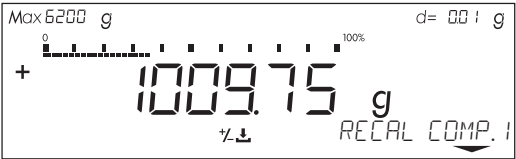


15. End the weighing procedure  
Total weight is printed

CF

Comp1	+	27.08	g
Comp2	+	12.42	g
R.div.	+	1.00975	
RCom1	+	27.34	g
Comp3	+	18.39	g
Comp4	+	31.49	g
Comp5	+	107.50	g
Comp6	+	812.61	g
Tot.cp	+	1009.75	g

Total weight is displayed  
Component memory is cleared



# Data Output

There are 3 options for data output:

- Output to the display/control unit
- Output to a printer (generate a printout)
- Output to a peripheral device (e.g., computer) via the interface port

## Output to the Display and Control Unit

The display is divided into 6 sections:

- Line for metrological data
- Bar graph
- Measured value line
- Weight unit display
- Symbol display
- Text line

Line for Metrological Data (when used as a legal measuring instrument)  
This line shows:

- Max4200 g
- Min 0.5 g
- e= 0.1 g
- d=0.01 g
- Maximum balance capacity (e.g., 4,200 g)
  - Minimum balance capacity; the weight must not go below this limit when the balance is used in legal metrology (e.g., 10 g)
  - Verification scale interval of the balance; irrelevant if the balance is not used in legal metrology (e.g., 0.1 g)
  - Readability: Indicates the actual scale interval (display increment of the balance) (e.g., 0.01 g)

## Bar Graph

- In the bar graph, weighing results are displayed either
- as a percentage of the maximum balance capacity, or
  - in relation to a target value, with tolerance limits indicated.

## Measured Value Line

This line displays:

- 1234.56
- 01-30-09
- 96-ABC1
- The current weight readout (digits bordered with a broken line are invalid in use for legal metrology)
  - Information on the balance and display and control unit (e.g., version numbers)
  - Data entered by the user (e.g., lot number)

Line for metrological data	
Bar graph	Weight unit display
Measured value line	
Symbol display	Text line



			Weight Unit Display This line shows:
	<i>kg</i>	–	Current weight unit (e.g., kg)
	<i>pcs</i>	–	Designation of other units of measure (e.g., piece count)
	<i>NET</i>	–	Operating status (e.g., net weight; printing)
	<i>o</i>	–	Identification of currently selected menu item
			Symbol Display This line shows:
	<i>isoCAL</i>	–	Indicators and warnings (e.g., isoCAL)
	%	–	Symbol of application program selected
			Text Line This line contains:
	<i>REPROTEST</i>	–	Explanatory text for value displayed in measured value line
<i>INFO</i>	<i>MENU</i>	<i>INPUT</i>	– Designation of current function of the soft keys (below the arrows)
			– Arrows indicating the soft keys designated above
			Display of “Longer” Values You can enter values up to 20 characters in length (e.g., identification numbers). These are displayed in the measured value line; this line, however, can only show up to 8 characters at a time.
			When a 20-character value is displayed, for example, the last 8 characters (13 through 20) are displayed first (in this example, the ID number is: “Shelf 5, carton 4020”).
	<i>ELTEr 25</i> { { -----ID----- } }		The text line displays the name of the value (“ID”) and an arrow indicating the direction of the characters not displayed.
	<i>L 5 bEHA</i> { { -----ID----- } }		Display characters 5 through 12: Press
	<i>rEQA</i> -----ID----- }		Display characters 1 through 4: Press

## Printing a Data Record

### Purpose

You can generate a printout of weights, other measured values and identification numbers for documentation purposes. You can format the printout to meet individual requirements.

### Available Features

#### Print manually/automatically:

To print the information contained in the measured value line (weight read-out, calculated value, numeric entry, alphabetic entry)

**Line format:** You can configure a data ID code of up to 6 characters for each of the values printed; this data ID code is printed at the beginning of the line

**Sample ID:** You can configure an extra line for identification of each weighed or calculated value

#### Print application parameters:

You can generate a printout of the values configured for initialization of an application before printing the measured results

#### ISO/GLP-compliant printout:

To print out parameters relating to weighing conditions

**Auto print:** To have a printout generated automatically when certain conditions are met, e.g., time elapsed, stability reached, etc.

**Print net-total:** For a printout of a component or total weight when using the “net-total” application

**Print animal weights:** For an automatic printout of animal weight, or of animal weight plus calculated weight after averaging

**Auto print +/-:** for automatic printout of a weight when it lies within preset limits at stability

### Factory Settings

**Print manually/automatically:** Printout generated manually (by pressing  $\boxed{F1}$ ) or automatically, depending on stability parameter:  
Manual after stability (5 1 2)

#### Line format:

A data ID code of up to 6 characters preceding weighed or calculated values:  
For other applications/GLP (7 2 2)

#### Print application parameters:

Print one or more of the initialization values for the current application program: Off (7 1 1)

**ISO/GLP-compliant printout/data record:** Documentation of weighing conditions for each series of measurements/each lot: Off (8 1 1)

#### Auto print:

Automatic printout of weighed/calculated values:

- not a factory setting; see “Print manually/automatically” (5 1 2)
- Not possible to stop by pressing  $\boxed{F1}$  (5 2 2)
- After 1 display update (5 3 1)

#### Print net-total:

Printout of component weight (net weight) or total weight (tare weight):  
Auto print net (7 3 1)

#### Print animal weights:

Automatic printout of animal weight, or of animal weight plus calculated result:  
On: animal wt. (3 9 2)

#### Auto print +/-:

Automatic printout of weights when within tolerance at stability: off (4 2 2)

- Parameter settings:  
See “Configuration”



#### Print Manually/Automatically

The printout contains the current value in the measured value display (weight readout with weight unit; calculated value; numeric/alphabetic display)

+ 1530.000 g  
+ 58.5620 oz t  
+ 253 pcs  
+ 88.23 %  
+ 105.78 o

Weight in grams  
Weight in Troy ounces  
Piece count  
Percentage  
Calculated value

#### Line Format

The current value displayed can be printed with a data ID code of up to 6 characters at the beginning of the line. You can use this data ID code, e.g., to designate a weight readout as a net weight (N) or a calculated value as a piece count (Qnt)

ID ABC123DEF456GH  
L ID ABC123DEF456GH  
  
W ID ABC123DEF456GH  
N + 1530.000 g  
Qnt + 253 pcs  
Prc + 88.23 %  
Nom. + 2000.00 g

Identification number\*  
Lot number (weighing series)\*  
Weight set number\*  
Net value  
Quantity  
Percentage  
Exact calibration weight

\* = only on ISO/GLP-compliant printouts

#### Sample ID

You can have each weighed or calculated value that you print preceded by a line of text containing numbers and/or letters. You can either print this ID immediately as an alphanumeric input (press  $\boxed{E}$ ) or store it as the sample ID (5 I B soft key)

S ID ABC123DEF456GH  
  
ABC123DEF456GHI789JK  
  
NUM 12345678

Sample ID  
(with less than 14 characters)  
Sample ID  
(with more than 14 characters)  
Numeric key output when  $\boxed{E}$  is pressed

#### Print Application Parameters

You can generate a printout of one or more of the values configured for initialization of an application as soon as you initialize the balance. This can include such values as nRef, wRef, pRef, etc.

nRef 10 pcs  
wRef 1.23456 g  
pRef 80 %  
Wxx% 1200.00 g  
mDef 10  
  
Mul 0.00347  
Setp + 1000.035 g  
Min + 981.054 g  
Max + 1020.063 g  
N1 + 278.11 g  
T2 + 1821.48 g  
Comp7 + 278.11 g  
  
Tot.c.p+ 2117.56 g

Counting: Reference sample quantity  
Counting: Average piece weight  
Weighing in percent: Reference percentage  
Weighing in percent: Reference weight  
Animal weighing:  
Number of subweighs for averaging  
Animal weighing: multiplication factor  
Over/under checkweighing: Target weight  
Over/under checkweighing: Lower limit  
Over/under checkweighing: Upper limit  
Net-total: net weight  
Net-total: tare weight  
Net-total: weight of 7th component  
Net-total: total weight of components  
(only for ISO/GLP-compliant records)

#### Auto Print

You can have the weight readout (or the value displayed in the measured value line) printed automatically; this printout can be generated after a certain number of display updates; you can also configure whether or not the auto-print function is dependent on the stability parameter. The display update frequency depends on both the model of the balance and the current operating state.

N	+	1530.00 g	Net weight
S-I D		12345678901234	Sample ID
Stat			Display blank
Stat		L	Display underload
Stat		H	Display overload

#### Print Net-Total

When you run the net-total application, you can have the weight of the last component weighed (net value) or the total weight (tare value) printed automatically.

Comp1	+	1821.48 g	First net weight
-------	---	-----------	------------------

#### Print Animal Weights

When using the animal weighing application, you can have the results printed automatically upon completion of the averaging process. You can also have both the weight and the calculated result printed.

mDef		10	Number of subweighs for averaging
Mul		0.00347	Multiplication factor
x-Net	+	1530.00 g	Result of averaging
x-Res	+	5.30 o	Calculated result

#### Auto Print +/-

With the over/under checkweighing application, you can have the result printed automatically if it lies within a defined range (acceptable value).

N	+	1530.000 g	Net weight
Setp	+	1000.035 g	Target weight
Min	+	981.054 g	Lower limit
Max	+	1020.063 g	Upper limit
N	+	1010.147 g	Printout of acceptable values

#### Data Output Functions

##### Printing a Data Record

Print for use in legal-for-trade applications:

You can configure the scale operating menu to generate a printout that conforms to the regulations for use in legal metrology (last digit marked) on a Sartorius printer:

- YDP011S: 5 5 4
- YDP02: 5 5 5
- YDP03: 5 5 6

#### ISO/GLP-compliant Printout/Record

You can have the parameters pertaining to the ambient weighing conditions printed before (GLP header) and after (GLP footer) the values of a weighing series.

These parameters include:

- Date
- Time at the beginning of a weighing series
- Balance manufacturer
- Balance model
- Model serial number
- Software version
- Lot ID (weighing series no.)
- Time at the conclusion of the weighing series
- Field for operator signature

Operating the Balance with an ISO/GLP-capable Documentation Device (Printer)

You can connect a special printer from Sartorius to your balance for printing ISO/GLP-compliant records.

This printer, called "Data Printer" (order no.: YDP03-OCE), offers the following features:

- ISO/GLP function can be switched on and off
- Date/time
- ID no. for identification of workstation/operator
- Documentation includes balance-specific data

#### Note:

The time indicated on the printout consists of only hours and minutes.

For ISO/GLP-compliant documentation with a computer, you will need special software.

Contact Sartorius for a detailed description for creating this software.

```

-----
28.06.1997      16:12
      SARTORIUS
Mod.           GPC65
Ser.-Nr.       60419914
Vers.-Nr.      01-30-09
ID            12345678901234
-----
C-ID  12345678901234
nRef   10 pcs
wRef   1.35274 g
Qnt    + 235 pcs
Qnt    + 4721 pcs
S-ID   12345678901234
Qnt    + 567 pcs
-----
28.06.1997      16:13
Name:
-----

```

Dotted line  
 Date/time (only with the YDP03-OCE printer)  
 Balance manufacturer  
 Balance model  
 Balance serial number  
 Software version  
 (display and control unit)  
 Balance ID no.  
 Dotted line  
 Weighing series no.  
 Application initialization value  
 Application initialization value  
 Counting result  
 Counting result  
 ID for counting result  
 Counting result  
 Dotted line  
 Date/time (only with the YDP03-OCE)  
 Field for operator signature  
 Blank line  
 Dotted line  
 Blank line  
 Blank line

# Interface Port

## Purpose

Your pipette calibration balance comes equipped with an interface port for connection to a computer or other peripheral device.

You can use an on-line computer to change, start and/or monitor the functions of the balance and the application programs.

The interface port also has four data output port lines for the over/under checkweighing program.

## ⚠ Warning When Using Pre-wired RS-232 Connecting Cables!

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius balances. Be sure to check the pin assignment against the chart on the right before connecting the cable, and disconnect any lines marked "Internally Connected" (e.g., pin 6). Failure to do so may damage or even completely ruin your balance and/or peripheral device.

## Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rates:	150; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200 baud
Parity:	Space, odd, even
Character format:	1 start bit, 7-bit ASCII, parity, 1 or 2 stop bits
Handshake:	2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR)
Data output format of the balance:	16 or 22 characters

## Factory settings:

Transmission rate:	1,200 baud	(5 1 4)
Parity:	Odd	(5 2 3)
Stop bits:	1 stop bit	(5 3 1)
Handshake:	Hardware 1 character after CTS	(5 4 3)
Print manually/automatically:	Manual with stability	(6 1 2)
Stop automatic printing:	Not possible	(6 2 2)
Automatic printout, time-dependent:	After 1 display update	(6 3 1)
Line format:	For other applications/GLP	(7 2 2)

## Preparation

- See page 65 for the pin assignment chart

#### Line Format (Data Output Format)

You can output the values displayed in the measured value line and the weight unit with or without a data ID code

Example: Without data ID code

**+ 253 pcs**

Example: With data ID code

**Qnt + 253 pcs**

Configure this parameter in the Setup menu under item 72.

The output with data ID code has 16 characters; without data ID code, 22 characters.

#### Output Format with 16 Characters

Display segments that are not activated are output as spaces.

Characters without a decimal point are output without a decimal point.

The following characters can be output, depending on the characters displayed on the balance:

##### Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	-		.	.	.	.	.	.	.	.		*	*	*		
or	*		*	*	*	*	*	*	*	*						
or					0	0	0	0	0	0						

\*: Space

D: Digit or letter

U: Unit symbol

CR: Carriage return

LF: Line feed

##### Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	-	-	*	*	*	*	*	*	CR	LF
or							H	H								
or							L	L								
or							C									

\*: Space

- -: Weight; all numbers shown in stable readout

H: Overload

H H: Overload during checkweighing

L: Underload

L L: Underload during checkweighing

C: Calibration/adjustment

##### Error codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

\*: Space

# # #: Error code number

Data output example: + 1255.7 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	.	7	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space  
 Position 2: Space  
 Positions 3–10: Weight with a decimal point; leading zeros = space  
 Position 11: Space  
 Positions 12–14: Unit symbol or space  
 Position 15: Carriage return  
 Position 16: Line feed

#### Data Output with an ID Code

When data with an ID code is output, the ID code consisting of 6 characters precedes the data with the 16-character format. These 6 characters identify the following value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	1	1	1	1	1	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
		*	*	*	*	*	–	.	.	.	.	.	.	.	.		*	*	*		
							*	*	*	*	*	*	*	*	*						
										0	0	0	0	0	0						

I: ID code character<sup>1)</sup> U: Unit symbol<sup>1)</sup>  
 \*: Space CR: Carriage return  
 D: Digit or letter LF: Line feed

<sup>1)</sup> depends on balance type; e.g., not all units and characters are available on balances verified for use in legal metrology

#### Special Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
S	t	a	t	*	*	*	*	*	*	*	*	–	–	*	*	*	*	*	*		CR	LF
												H	H									
												L	L									
												C										

\*: Space L: Underload  
 – -: Weight; all numbers shown in final, stable readout L L: Underload during checkweighing  
 H: Overload C: Calibration/adjustment  
 H H: Overload during checkweighing

#### Error codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

\*: Space # # #: Error code number

#### Unit symbol U<sup>1)</sup>

	No stability parameter
g	Grams
k g	Kilograms
c t	Carats
l b	Pounds
o z	Ounces
o z t	Troy ounces
t l h	Hong Kong tael
t l s	Singapore tael
t l t	Taiwanese tael
G N	Grains
d w t	Pennyweights
m g	Milligrams
/ l b	Parts per pound
t l c	Chinese tael
m o m	Mommies
K	Austrian carats
t o l	Tola
b a t	Baht
M S	Meshgal
%	Percent
p c s	Pieces (piece count)

#### ID code characters<sup>1)</sup>

<b>S t a t</b>	Status
<b>T 2</b>	Application tare memory
<b>N</b>	Net weight (T1 = 0)
<b>N 1</b>	Net weight (T1 0)
<b>Q n t</b>	Quantity
<b>P r c</b>	Percentage
<b>n R e f</b>	Reference sample quantity
<b>p R e f</b>	Reference percentage
<b>w R e f</b>	Average piece weight
<b>W x x %</b>	Reference percentage weight
<b>N U M</b>	Numeric input
<b>C o m p x x</b>	Component no. xx in net-total component mode
<b>T o t . c p</b>	Total weight in net-total component mode
<b>m D e f</b>	No. of subweighs for animal weighing
<b>M u l</b>	Multiplication factor for animal weighing
<b>x – N e t</b>	Result in animal weighing
<b>x – R e s</b>	Calculated result in animal weighing
<b>S e t p</b>	Target value for checkweighing
<b>M i n</b>	Lower limit for checkweighing
<b>M a x</b>	Upper limit for checkweighing

## Data Input Format

You can connect a computer to your balance to send commands via the balance interface port to control balance functions and applications.

The commands sent are control commands and may have different formats; e.g., control commands can have up to 26 characters. Each character must be transmitted according to the settings configured in the Setup menu for data transmission.


### Format for Control Commands

Format 1:	Esc	!	CR	LF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Esc:	Escape	_:	Underline (ASCII: 95)
!:	Command character	CR:	Carriage return
#:	Number	LF:	Line feed
&t:	Number or letter	max:	Depends on command character; i.e., parameter: once the max. length is reached, input received via the interface port is cut off, rather than rejected as for a key input

See the chapter entitled "Overview" for the ASCII character table.

### Format 1

!	Meaning
K	Weighing mode 1
L	Weighing mode 2
M	Weighing mode 3
N	Weighing mode 4
O	Block keys
P	Print
R	Unblock keys
S	Restart
T	Tare 
Z	Internal calibration/adjustment

### Format 2

!#	Meaning
f0	Function key 
f1	Function key 
f2	Function key 
f3	Zero (separate zeroing key)
f4	Tare (separate zeroing key)
s3	Function key 
x0	Perform internal calibration
x1	Print balance model
x2	Print weighing cell serial number
x3	Print weighing cell software version
x4	Print display and control unit software version
x5	Print balance ID number
x6	Print weight set number
x7	Print lot number (weighing series ID)

### Format 3 (not allowed in the Setup menu)

!#	Meaning
z5	Input balance ID number
z6	Input weight set number
z7	Input lot number

### Format 4

!	Meaning
t	Text input in display

### Synchronization

During data communication between the balance and an on-line device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the on-line device. You can also define parameters in the balance to make data output dependent on various conditions. The conditions that can be configured are described under each of the application program descriptions.

If you do not plug a peripheral device into the balance interface port, this will not generate an error message.

### Handshake

The balance interface (Sartorius Balance Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS)
- Software handshake (XON, XOFF)

#### Hardware Handshake

With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

#### Software Handshake

The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:

Balance	---	byte	----	Computer
(trans-	---	byte	----	(receiving
mitting	---	byte	----	device)
device)	---	byte	----	
	<---	XOFF	----	
	---	byte	----	
	---	byte	----	
	...			
	(Pause)			
	...			
	<---	XON	----	
	---	byte	----	
	---	byte	----	
	---	byte	----	
	---	byte	----	

#### Transmitting Device:

Once XOFF has been received, it prevents further transmission of characters. When XON is received, it re-enables the transmitting device to send data.

#### Receiving Device:

XOFF is transmitted after the 26th character has been stored.


To prevent too many control commands from being received at one time, XON is not transmitted until the buffer has transmitted all but 14 characters.

If the device addressed does not understand the control command, the SBI receiving device activates DTR (Data Terminal Ready) after 6 more characters have been received. The busy signal is deactivated by XON (14 characters).

#### Activating Data Output


You can define the data output parameter so that output is activated either when a print command is received or automatically and synchronous with the balance display or at defined intervals (see application program descriptions and auto print settings).

#### Data Output by Print Command

The print command can be transmitted by pressing  or by a software command (Esc P).

#### Automatic Data Output

In the "auto print" operating mode, data are output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the balance display. The display update frequency depends on both the model of the balance and the current operating state.

If you select the auto print setting, data will be transmitted immediately the moment you turn on the balance. In the Setup menu, you can configure whether this automatic output can be stopped and started by pressing .



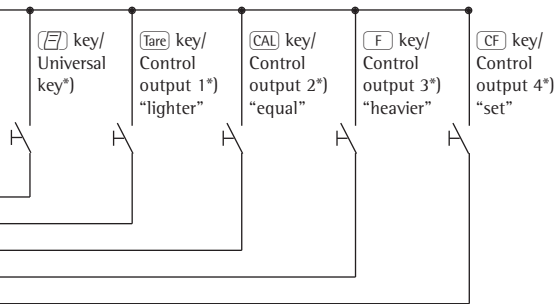
# Pin Assignment Chart

**Female Interface Connector:**  
25-position D-Submini, DB25S, with screw lock hardware for cable gland

**Male Connector Required:**  
**(please use connectors with the same specifications)**  
25-pin D-Submini, DB25S, with integrated shielded cable clamp assembly (Amp type 826 985-1C) and fastening screws (Amp type 164 868-1)

**Pin Assignment Chart:**

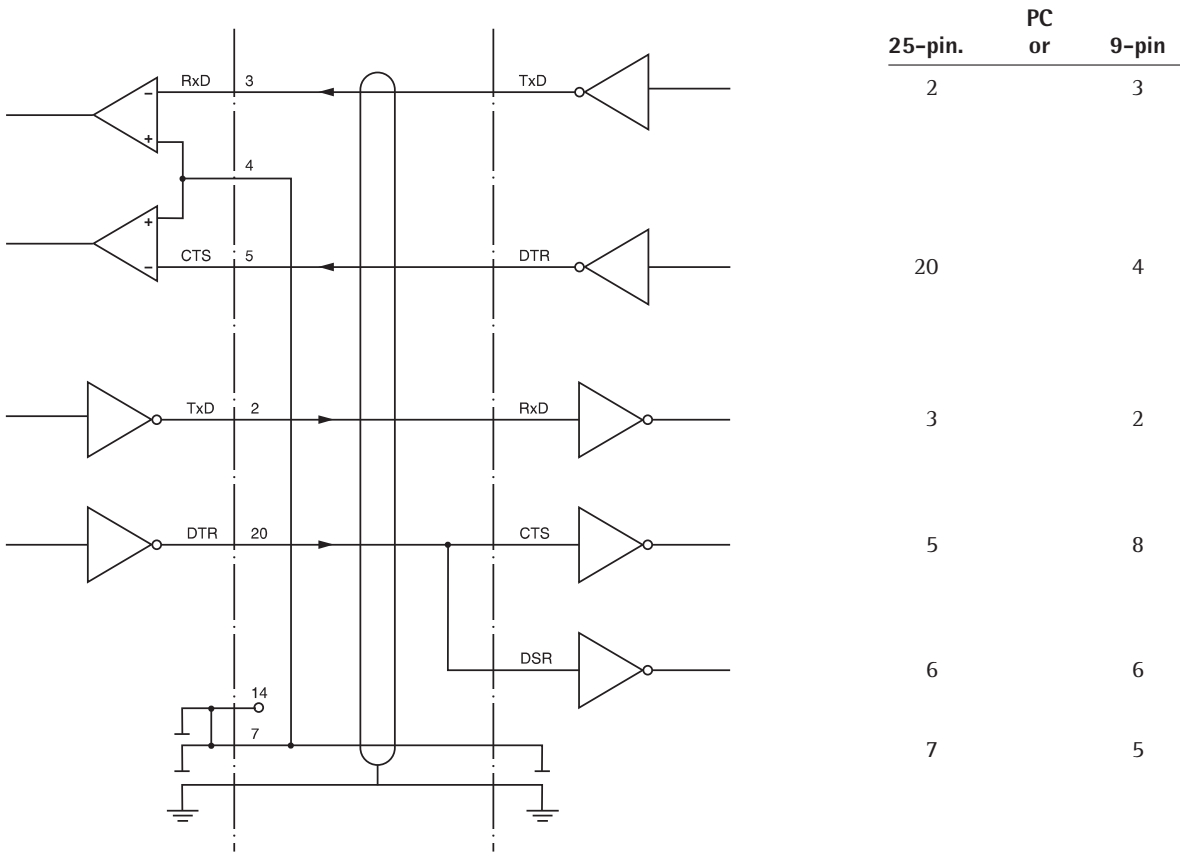
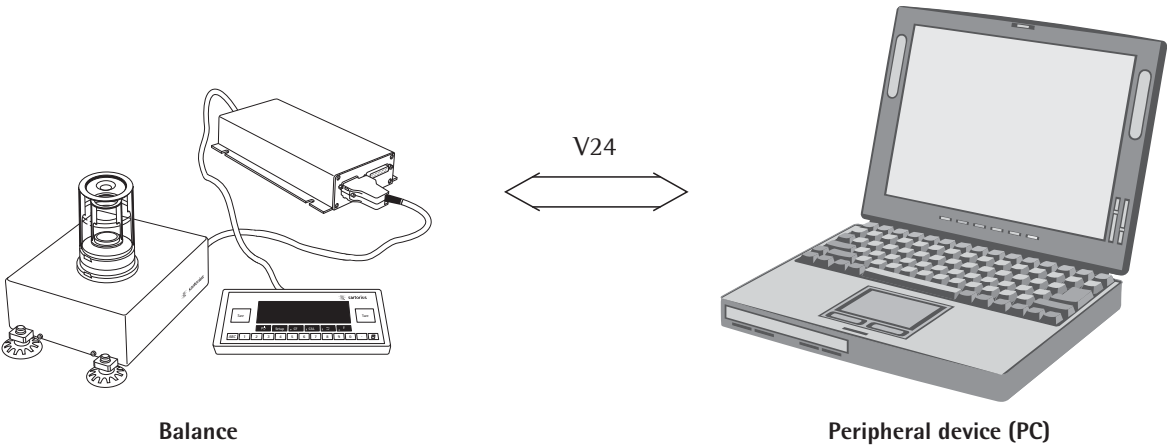
- Pin 1: Signal ground
- Pin 2: Data output (Tx/D)
- Pin 3: Data output (Rx/D)
- Pin 4: Signal return (Tx/D/Rx/D)
- Pin 5: Clear to send (CTS)
- Pin 6: Internally connected
- Pin 7: Internal ground
- Pin 8: Internal ground
- Pin 9: Reset \_ In\*\*)
- Pin 10: - 12 V
- Pin 11: + 12 V
- Pin 12: Reset \_ Out\*\*)
- Pin 13: + 5 V
- Pin 14: Internal ground
- Pin 15: \_\_\_\_\_
- Pin 16: \_\_\_\_\_
- Pin 17: \_\_\_\_\_
- Pin 18: \_\_\_\_\_
- Pin 19: \_\_\_\_\_
- Pin 20: Data terminal ready (DTR)
- Pin 21: Supply voltage ground "COM"
- Pin 22: Not connected
- Pin 23: Not connected
- Pin 24: Supply voltage input + 15 to 25 V
- Pin 25: +5 V



\*) = See "Additional Functions" for information on changing pin assignments  
\*\*) = Hardware restart

# Cabling Diagram

- Diagram for interfacing a computer or different peripheral device to the balance using the RS-232/V24 standard and cables up to 15 m (50 ft.) long



Type of cable: AWG 24 specification

# Additional Functions

## Password

You can block access to parameter settings in the Setup menu and to the ID-code input function, as well as to the exact calibration weight, by assigning a password.

Enter the password by selecting *INPUT* in the Setup menu.

See “Configuring the Balance” for a detailed description.

## Protecting Menu Parameters

In the Setup menu, you can define whether menu parameters are:

- accessible for changes (*ALTERABLE*, B 1 1)
- can be read only (*READABLE*, B 1 2)

## Acoustic Signal

An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep tone; when it is not allowed, this is signaled by a double beep (key does not initiate a function). In the Setup menu, you can configure whether

- the acoustic signal should sound (*ON*, B 2 1), or
- the acoustic signal should not sound (*OFF*, B 2 2)

## Blocking the Keys

When you operate the balance via an on-line computer, it is advisable that you block the keys on the display and control unit. In the Setup menu, you can configure whether

- the keys are active (*KEYS UNBLOCKED*, B 3 1),
- the keys are blocked (*KEYS BLOCKED*, B 3 2), except for *SETUP* and *ON*, or
- the alphanumeric keys are blocked (*ALPHANUM. BLOCKED*, B 3 3).

## Universal Switch for Remote Control

You can connect an external universal switch to the interface port of your balance (e.g., a foot switch) for remote control of the functions listed below.

In the Setup menu, you can configure which function is to be controlled via remote switch:

- Printing (*PRINT KEY FUNCTION*, B 4 1)
- Taring (*TARE KEY FUNCTION*, B 4 2)
- Calibration (*CAL KEY FUNCTION*, B 4 3)
- Function key (*F KEY FUNCTION*, B 4 4)
- Delete/cancel (*CF KEY FUNCTION*, B 4 5)
- Toggling (*TOGGLE KEY FUNCTION*, B 4 6)

## Display Backlighting

You can have the display backlit for improved readability of displayed values. In the Setup menu, you can configure whether the

- display backlighting is on (*ON*, B 5 1),
- display backlighting is off (*OFF*, B 5 2), or
- display backlighting switches off automatically if there is no change in the readout for at least 4 minutes (*AUTO OFF AFT. 4 MIN.*, B 5 3)

## Power-On Mode

You can configure the balance so that once a power supply is connected,

- the balance is turned off (*OFF/ON/STANDBY*, B 6 1 or *OFF/ON*, B 6 2), or
- the balance switches on automatically (*AUTO ON*, B 6 4)

You can also set the configurations so that when the balance is switched off after use, it is

- off – not in balances with a weighing capacity 16 kg (*OFF/ON*, B 6 2), or
- in the standby mode (*OFF/ON/STANDBY*, B 6 1)

When you turn on the balance, a self-test of the functions is run (test is displayed; the bar graph is shown)

After the self-test has been completed, the weighing range of the balance is displayed (line for metrological data shows different maximum values)

## Automatic Shutoff

When parameter B 6 2 is selected in the Setup menu, you can configure whether






- the balance will shut off automatically after 4 minutes without use (*AFTER 4 MIN.*, B 7 1), or
- automatic shutoff is deactivated (*OFF*, B 7 2)

Interface Port Input/Output


You can connect a checkweighing display and a remote universal switch to the interface port (factory setting).

When you connect a remote universal switch, you need to change the following parameters.

Pin Assignments for the Female Interface Connector

Pin	Input Function (B B 1)	Output Function (B B 2)
15	 key	Remove universal switch (see below)
16	 key	Control output port 1: lighter
17	 key	Control output port 2: equal
18	 key	Control output port 3: heavier
19	 key	Control output port 4: "set"

Remote universal switch

Function	Menu setting
 key	B 4 1
 key	B 4 2
 key	B 4 3
 key	B 4 4
 key	B 4 5
 key	B 4 6

See "Pin Assignment Chart" in the chapter entitled "Overview" for detailed information.

Printing an ISO/GLP-compliant Record

In the Setup menu, you can configure whether

- no ISO/GLP-compliant record will be printed (OFF, B 10 1),
- an ISO/GLP-compliant record will be printed after calibration/adjustment (ONLY FOR CAL./ADJ., B 10 2), or
- every printout will be an ISO/GLP-compliant record (ALWAYS ON, B 10 3)

Undoing All Parameter Changes – Reset Function

There is a factory setting for each parameter. In the Setup menu, you can configure whether

- menu factory settings will be restored after exiting Setup (RESTORE, 9 1 1), or
- menu factory settings will not be restored after exiting Setup (DO NOT RESTORE, 9 1 2)

# MP8 Interface Emulation

## Purpose

With the MP8 interface emulation you can connect peripheral devices of the MP8 generation that have separate AC power supplies, such as the 73822... Data Control terminal, a YFC... Flow Rate Controller, a YDI50Z Data Input dedicated keyboard, etc., to your GPC65 series balance.

## Available Features

- The balance can only be used to determine weights
- The interface communicates exclusively in the MP8 binary protocol.
- Select application programs for use with the MP8 under item 3 in the balance operating menu.
- The Index 2 program for MP8 can be selected under item 4 of the balance operating menu
- The following parameters remain accessible as before:
  - Weighing parameters [1-x-x]
  - Extra functions [8-x-x]
  - Reset function [9-x-x](see "Setting Parameters (Menu)" in the chapter entitled "Configuration")

⚠ "MP8 interface" not allowed during use in legal metrology. When the menu access switch is sealed, the MP8 interface will not function.

## Factory Settings of the Parameters

(special settings for MP8 functions)

Program selection: MP8: 3-1-1

Program index 2: 1 IND. 2. 1

## Preparation

- Turn on the balance: Press
- > All display segments light up briefly

Switch to the MP8 interface:

- Press
- Select balance operating menu: MENU soft key (press the key)
- Select and confirm the BALANCE MENU: press the and then the key
- Confirm FACTORY SETTING: key
- Select and confirm MP8 mode [9-1-9]  
Press or key, repeatedly if necessary; then press

- Press

Parameter Settings for the MP8 Interface

- Press
- Select the balance operating menu: MENU soft key (press the key)
- Select and confirm:
  - 3 APPLICATION PROG. 1 APP. SELECTION:  
1 MP8 3-1-1 or  
...  
9 MP8 3-1-9 or  
10 MP8 3-2-1 or  
...  
18 MP8 3-2-9 or  
19 MP8 3-3-1 or  
...  
27 MP8 3-3-9
  - 4 PROGRAM-INDEX; 2 IND. 2:  
1 IND. 2.1 or  
2 IND. 2.2 or  
3 IND. 2.3 or  
4 IND. 2.4
  - 5 INTERFACE:  
1 BAUD RATE  
1 150 BAUD or  
2 300 BAUD or  
3 600 BAUD or  
4 1,200 BAUD or  
5 2,400 BAUD or  
6 4,800 BAUD or  
7 9,600 BAUD or  
2 PARITY  
2 SPACE or  
3 ODD or  
4 EVEN
  - 6 PRINT WEIGHING  
1 PRINT MAN./AUTO  
1 MANUAL WITHOUT STABILITY or  
2 MANUAL WITH STABILITY or  
4 AUTOMATIC WITHOUT STABILITY or  
5 AUTOMATIC AT STABILITY

- Store settings and exit the Setup menu: Press





# Error Codes and Messages

## Error Codes

Error codes are displayed in the main display or application display for 2 seconds. The program then returns automatically to the previous mode (e.g., weighing).

Display	Cause	Solution
No segments appear on the display	No AC power is available	Check the AC power supply
	The AC adapter is not plugged in Automatic shutoff configured in the Setup menu (code <i>B 7 1</i> )	Plug in the AC adapter Press <b>ON</b> to turn on the balance or select code <i>B 7 2</i> in the Setup menu ("no automatic shutoff")
<i>H</i>	The load exceeds the balance's capacity	Unload the balance
<i>L</i> or <i>Err 54</i>	The weighing pan is not in place	Place the weighing pan on the balance
<i>Err 01</i> <i>DISPLAY RANGE</i>	Data output not compatible with output format	Change the configuration in the Setup menu
<i>Err 02</i> <i>CAL.N.POSSIBLE</i>	Calibration/adjustment criterion not met, e.g., – not tared – the balance is loaded	Calibrate only when zero is displayed  Press <b>Tare</b> to tare Unload the balance
<i>Err 03</i> <i>CAL./ADJ. INTERRUPT</i>	Calibration/adjustment could not be completed within a certain time	Allow the balance to warm up again and repeat the adjustment process
<i>Err 06</i> <i>INT.WT. DEFECTIVE</i>	Built-in calibration weight is defective	Contact your local Sartorius Service Center
<i>Err 07</i> <i>FUNCTION BLOCKED</i>	Function not allowed in balances verified for use in legal metrology	Contact your local Sartorius Service Center for information on having the settings changed
<i>Err 08*</i> <i>ZERO RANGE</i>	The load on the balance is too heavy to zero the readout	Check whether the "power-on zero range" is set
<i>Err 09*</i> <i>LOAD NOT ALLOWED</i>	Taring is not possible when the gross weight is $\text{Center} \geq \text{zero}$	Zero the balance
<i>Err 10</i> <i>TARE FCT. BLOCKED</i>	The tare key is blocked when there is data in the tare memory (e.g., when running the net-total application); the tare functions cannot be accessed simultaneously	Press <b>CF</b> to clear the tare memory; then you can tare by pressing <b>Tare</b>
<i>Err 11</i> <i>TARE 2 BLOCKED</i>	Tare memory not allowed	Check the tare value entered
<i>Err 12</i> <i>TARE &gt; MAX.</i>	Tare stored in memory greater than weighing range or range limits	Check sample/container
<i>Err 17</i> <i>ADJ.-WT. &gt; MAX.</i>	Internal adjustment is not possible because the preload is too heavy	Reduce the preload or change the configuration

\* = occurs only when balance is operated via the SBI interface (ESC f3\_/f4\_)

Display	Cause	Solution
Err 30 PRINT FCT. BLOCKED REF.WT. TOO LIGHT	Interface port for printer output is blocked	Contact your local Sartorius Service Center
UPD. NOT POSSIBLE	Error in storing reference weight (with the counting or weighing-in-percent application)	Weight too light or there is no sample on the balance
NO NUM. VALUE XXXXXX TOO LOW XXXXXX TOO HIGH TOO MANY CHARACTERS	Reference sample updating not possible (with the counting application)	See "Counting" in "Operation the Balance" for reference updating criteria
	Input wrong (for any application program), e.g., alphabetic input not allowed	Follow the instructions for the application programs
	Input text too long	Allowable text lengths, incl. decimal point: – S ID and L ID: 20 characters max. – W ID: 14 characters max. for weights
Err 10    x = 1 : x = 2 : x = 3 : x = 4 :	Key is stuck	Contact your local Sartorius Service Center
All segments displayed continuously	Key pressed when turning on the balance: CF, CAL,  , F 0, 3, 4, 9 2, 5, 6,  , Tare – right 1, 7, 8, ABC, Tare – left Either  was pressed when you turned on the balance, or this key is stuck	Release key
Err 340	Operating parameter (EEPROM) is wrong	Contact your local Sartorius Service Center
no IIP BLOCKED	Weighing cell (platform) defective	Contact your local Sartorius Service Center
	Function blocked	None
The special code  remains displayed	None of the keys has been pressed since the balance was turned on	Press a key
The weight readout changes constantly	Unstable ambient conditions	Set up the balance in another area
	Too much vibration, or the balance is exposed to a draft	Change Setup configurations to adapt the balance to the ambient conditions
	A foreign object is caught between the pan and the balance housing	Remove the foreign object
The weight readout is obviously wrong	The balance has not been calibrated/adjusted The balance was not tared before weighing The balance is not level The dust cover is caught under the weighing pan	Calibrate/adjust the balance Tare before weighing Level the balance See "Replacing the Dust Cover" in the chapter entitled "Care and Maintenance"

If any other errors occur, contact your local Sartorius Service Center.

## Care and Maintenance

### Service

Regular servicing by a Sartorius technician will extend the service life of your balance and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years.

### Repairs

Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may lead to hazards for the user.

### Cleaning

- ⚠ Make sure that no dust or liquid enters the balance housing
- ⚠ Do not use any aggressive cleaning agents (solvents or similar agents)
- Unplug the AC adapter from the wall outlet (mains supply)
- If you have an interface cable connected to the balance port, unplug it from the port
- Carefully remove any sample residue/spilled powder by using a brush or a hand-held vacuum cleaner
- Clean the balance using a piece of cloth which has been wet with a mild detergent (soap)
- After cleaning, wipe down the balance with a soft, dry cloth

### Safety Inspection

If there is any indication that safe operation of the balance with the AC adapter is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately
- > Lock the equipment in a secure place to ensure that it cannot be used for the time being

Safe operation of the balance with the AC adapter is no longer ensured when:

- there is visible damage to the AC adapter
- the AC adapter no longer functions properly
- The AC adapter has been stored for a relatively long period under unfavorable conditions

In this case, notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany. Maintenance and repair work may only be performed by service technicians who are authorized by Sartorius and who

- have access to the required maintenance manuals
- have attended the relevant service training courses

## Instructions for Recycling

To ensure adequate protection for safe shipment, the pipette calibration balance has been packaged to the extent necessary using environmentally friendly materials. After successful installation of the balance, you should return this packaging for recycling.

For information on recycling options, including recycling of old weighing equipment and disposal of used batteries, contact your municipal waste disposal center or local recycling depot.



# Description of the Keys

 Key      On/off switch

Switches the display on/off.

The balance remains in the standby mode.

 Key      Settings for Configuring the Balance

- Access to the Setup menu
- Stores settings and exits Setup menu

You can select:

*INFO*

Display basic information about the equipment (e.g., model name, serial no., software version)

*MENU*

Balance operating menu with plain English prompts for adapting the balance to individual requirements

*INPUT*

For entering identifying information (e.g., balance ID)

 Key      Clear

This key is generally used to interrupt/cancel functions:

- Delete keyboard input and clear memory
- Interrupt calibration/adjustment routines
- Return application program to previous status

 Key      Calibration/Adjustment

Press this key to select and start calibration/adjustment functions.

 Key      Toggle

This key toggles the display readout between a weight and a calculated value (counting, readout in percent, calculated result)

 Key

Start an Application

Further instructions on running the applications when this key is pressed are contained in the chapter entitled "Operating the Balance;" refer to the section pertaining to the particular program.

    Keys





For moving around within the parameter submenus for Info, Menu and Input in the Setup menu.

 Keys      Tare

Two large keys for initiating the tare function. Ideally situated for both left-handed and right-handed operation. Sets the readout to zero. With balances that have the "PolyRange" weighing range structure, the fine range is available when this key is pressed.

 Key

Press this key to enter alphabetic characters and/or special characters (\*, /, space, etc.).

  ...   Keys

For numeric input

 Key

Define the decimal point position

 Key      Data Output

Press this key to output data via the interface to a Sartorius Data Printer or a computer.

# Menu Structure

1 x x Balance functions	1 1 x Adapt filter
	1 2 x Application filter
	1 3 x Stability range
	1 5 x Taring*
	1 6 x Auto zero
	1 7 x Weight unit 1
	1 8 x Display accuracy 1
	1 9 x CAL key function
	1 10 x Calibration/adjustment sequence
	1 13 x Tara/zero when power is turned on*
	1 15 x isoCAL function
2 x x Application programs	2 1 x Application program selection
3 x x Application parameters	3 1 x Weight unit 2
	3 2 x Display accuracy 2
	3 5 x Counting/percent parameters
	3 6 x Decimals for calculation
	3 7 x Animal activity
	3 8 x Start animal weighing
	3 9 x Print animal weights
	3 10 x Auto-start application
4 x x Parameter +/-	4 2 x Auto print +/-
	4 3 x +/- control ports on
5 x x Interface	5 1 x Baud rate
	5 2 x Parity
	5 3 x Number of stop bits
	5 4 x Handshake mode
	5 5 x Communication mode
	5 6 x Network address
6 x x Print for weighing	6 1 x Print manual/automatic
	6 2 x Abbruch Autoprint
	6 3 x Autoprint zeitabhängig
	6 4 x Tara nach Einzelprint
7 x x Print for application	7 1 x Print application parameters
	7 2 x Line format
	7 3 x Print net total
8 x x Extra functions	8 1 x Menu
	8 2 x Acoustic signal
	8 3 x Block keys (blocked or unblocked)
	8 4 x External universal switch function
	8 5 x Backlighting
	8 6 x Power-on mode
	8 7 x Auto shutoff
	8 8 x Control port function
	8 10 x ISO/GLP printout
9 x x Balance menu	9 1 x Factory settings

\* setting cannot be changed in balances used for legal metrology

# Specifications

		Standard specifications	Customer-specific modifications
Model		GPC65-CW	
Weighing capacity (with load receptor only)	g	60	
Weighing capacity (with evaporation trap)	g	35	
Readability	mg	0.01	
Max. preload on pan support w/o limiting the weighing range?, typical <sup>2)</sup>	g	0	
Max. preload on pan support with functions of built-in, motorized calibration weight, typical <sup>2)</sup>	g	110	
Tare range (subtractive)	g	100% of the maximum capacity	
Repeatability	≤±mg	0.03 (standard deviation) <sup>1)</sup>	
Linearity	≤±mg	0.15	
Response time <sup>1)</sup>	s	< 10	
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels	
Display update (depends on filter level selected)	s	0.1–0.4	
Operating temperature range	°C	+10 to +30 °C	
Allowable ambient operating temperature	°C	+5 to +40 °C	
Sensitivity drift within +10... +30 °C	<±/K	1 · 10 <sup>-6</sup>	
External calibration weight	g	50 (E2) (of at least accuracy class...)	
Material:			
– Weigh cell:		Stainless steel (load receptor: chemically nickel-plated aluminum)	
– Electronics module:		Aluminum paint	
Net weight, approx.	kg	7.2	
AC power source/power supply	V~	Via AC adapter, 230 VAC or 115 VAC line voltage +15% to -20% (IP protection IP20), power consumption: max. 35 VA	
Frequency	Hz	48 – 60	
Alternatively:			
Supply voltage	VDc	max. 12 – 25	
from customer's system	VDc	typically 14.5	
Ripple 50/60 Hz		0.5 Vpp (Voltage peak-to-peak)	
Power consumption		typically 4 W (weigh cell only)	
Power consumption: switch-on current		typically 6 W (weigh cell only); with optional display and control unit: 7 W (weigh cell + display and control unit)	
Built-in interface		RS232C-S/V24-V28; 7-bit; parity: even, mark, odd, or space; transmission rates: 150 to 19,200 baud, 1 or 2 stop bits, software/hardware handshake	

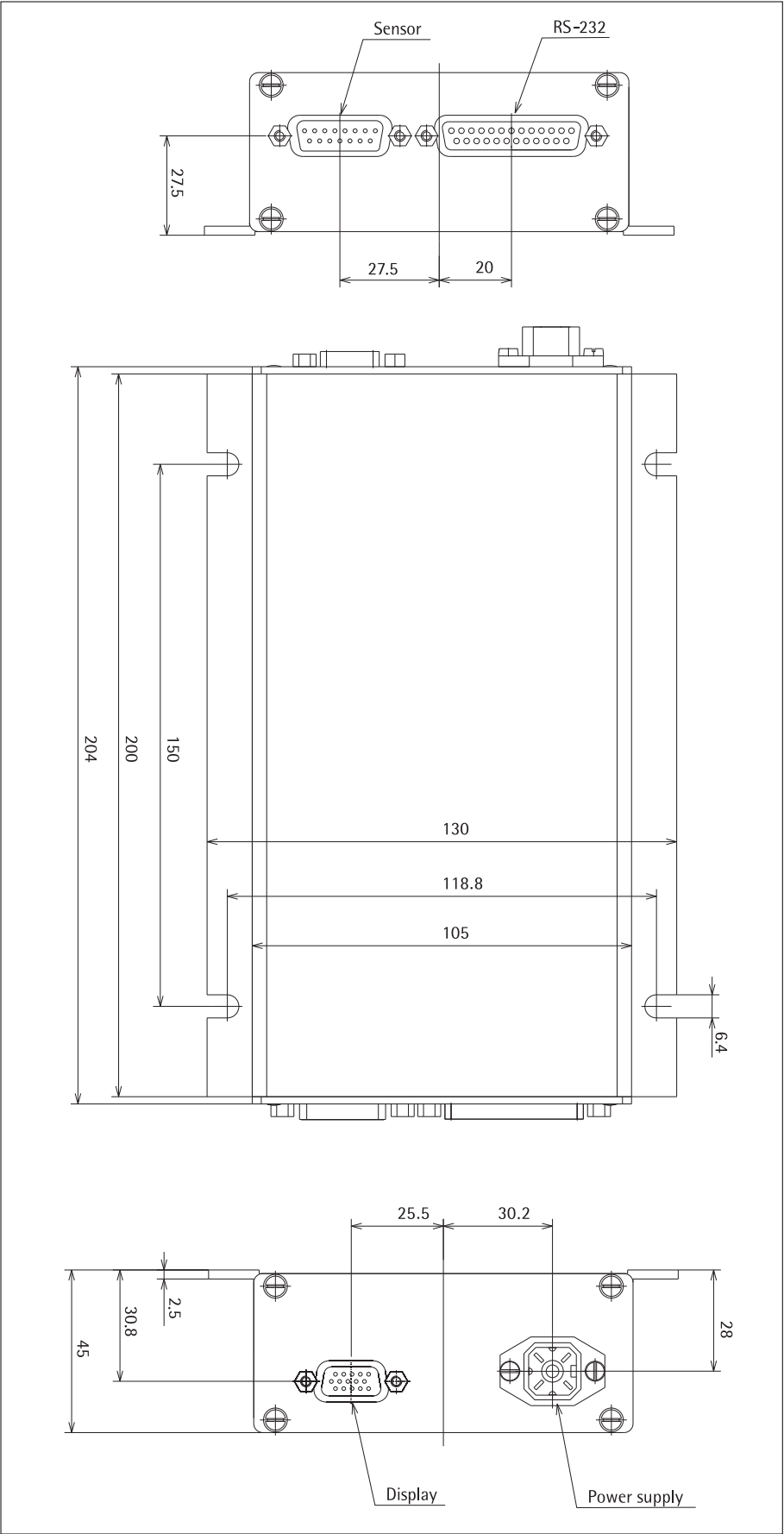
<sup>1)</sup> = depends on system design

<sup>2)</sup> = for operation with greater preload setting, please send e-mail to request YAD011S configuration software;  
e-mail address: fast.factory@sartorius.com

# Overview

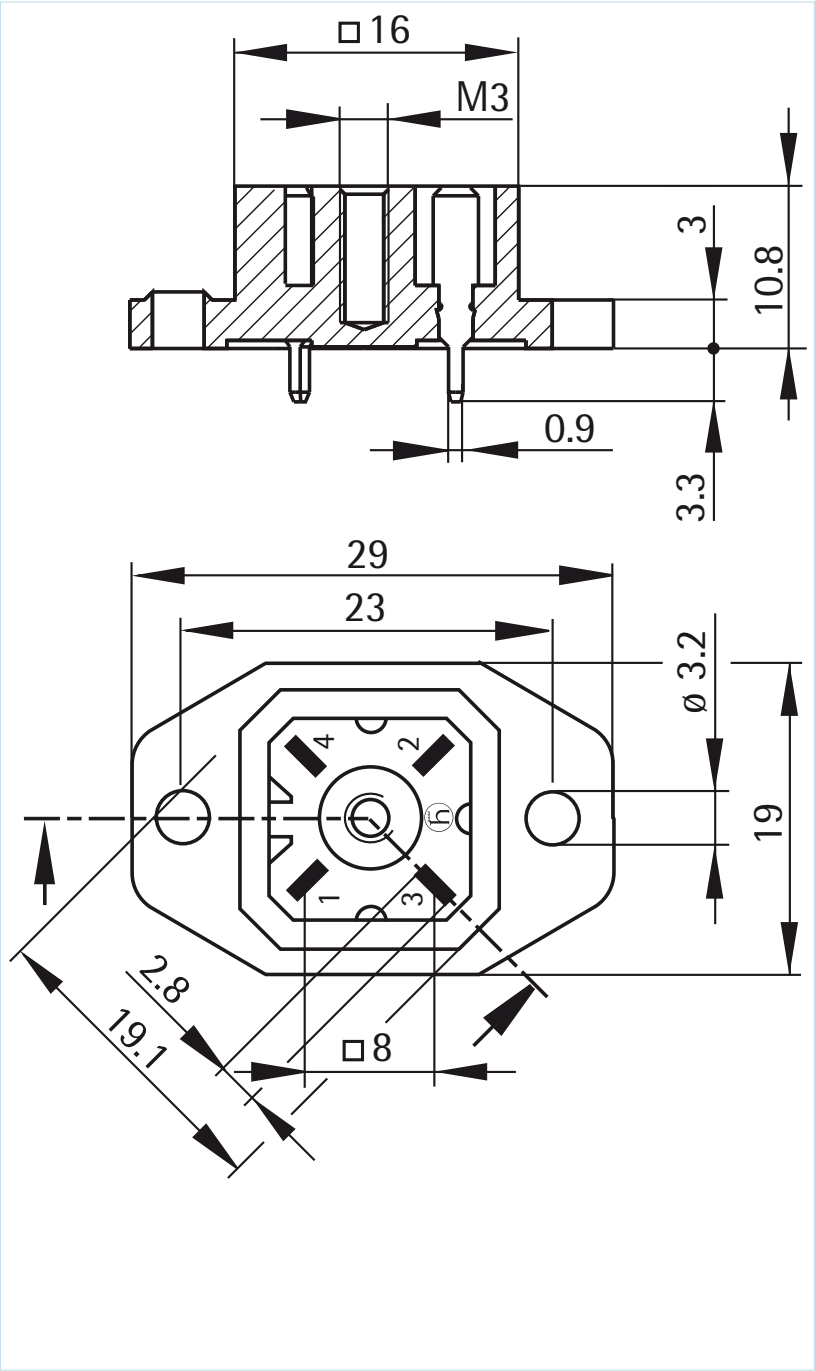
## Dimensions (Scale Drawings)

Electronics module for model GPC65-CW



All dimensions are given in millimeters.

Weigh cell, model GPC65-CW



All dimensions are given in millimeters.

## Accessories

Product	Order no.
Display and control unit with cable (0.5 m) for connection to electronics module	FF03-VF3659
Second display for connection to data interface	YRD02Z
Picasso pipette calibration software	YAD01IS
SartoConnect data transfer software (for loading weight values in a PC running Windows 95/98/NT and processing with application program, such as Excel, Access, etc.) incl. adapter cable (1.5 m) from weigh cell to PC (12-pin/9-pin)	YSC011
Data interface cable:	
– for PC connection, 25-pin	7357312
– for PC connection, 9-pin	7357314
Pipette calibration trap with adapter	YCP01WZA
Draft shield and 50 ml stainless steel container	YDS01WZA
Carrying case	YDB01WZA
Cotton gloves (1 pair)	YAW21
Other data interfaces (for example, RS-485, etc.)	upon request
AC adapter, IP40 protection in accordance with DIN VDE 0470/529	
– Europe:	6971966 + 6900900 (cable)
– US:	6971413
– UK:	6971966 + 6971945 (cable)
– Switzerland:	6971966 + 6971979 (cable)
– Denmark:	6971966 + 6971980 (cable)
– Australia:	6971966 + 6900905 (cable)
– South Africa:	6971966 + 6900902 (cable)
– India:	6971983 + 6971964 (cable)

Additional options and accessories available upon request

# Declaration of Conformity

## The CE Mark on Sartorius Equipment

In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning the CE marking is governed in the individual EU Member States through the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments that feature the latest advanced technology and provide many years of trouble-free service.

The CE mark may be affixed only to weighing instruments and associated equipment that comply with the applicable Directive(s):

## Council Directive 89/336/EEC "Electromagnetic Compatibility (EMC)"

Acceptable European Standards:

Limitation of emissions:  
EN 50081-1  
Residential, commercial and light industry

EN 50081-2  
Industrial environment

Defined immunity to interference:  
EN 50082-1  
Residential, commercial and light industry  
EN 50082-2  
Industrial environment

### Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

## Council Directive 73/23/EEC "Electrical Equipment Designed for Use within Certain Voltage Limits"

Applicable European Standards:

EN 60950  
Safety of information technology equipment including electrical business equipment

EN 61010  
Safety requirements for electrical equipment for measurement, control and laboratory use  
Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.



## EG-Konformitätserklärung *EC Declaration of Conformity*

**Sartorius AG**  
37070 Göttingen  
Germany

erklärt, dass das Betriebsmittel  
*declares that the equipment*

Gerät:  
*Apparatus:* **Elektronische Präzisionswaage**  
*Electronic precision weighing instrument*

Baureihe / *Batch:* **GPC....-CW**

Typbezeichnung:  
*Type:* **Siehe Anhang 1**  
*See Annex 1*

mit den Regelungen der folgenden Europäischen Richtlinien übereinstimmt:  
*complies with the regulations of the following European Directives:*

**Richtlinie 2004/108/EG**      Elektromagnetische Verträglichkeit  
*Directive 2004/108/EC*      *Electromagnetic compatibility*

**Richtlinie 2006/95/EG**      Elektrische Betriebsmittel zur Verwendung innerhalb  
*EC Directive 2006/95/EC*      bestimmter Spannungsgrenzen  
*Electrical equipment designed for use within certain voltage limits*

Das Gerät erfüllt die anwendbaren Anforderungen der in Anhang 2 aufgeführten  
harmonisierten Europäischen Normen.  
*The apparatus meets the applicable requirements of the harmonized European Standards  
listed in Annex 2.*

**Sartorius Mechatronics**  
Göttingen, 2007-08-15

  
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Prokurist, Leitung  
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## Entering the General Password

### Enter/Change Password

- Select the Setup menu:
- > The soft keys *INFO*, *MENU* and *INPUT* are displayed in the text line
- Select the user data input function:  
Press the *INPUT* soft key (
- > The password prompt is displayed  
(*ENTER PASSW.*)
- Enter the General Password (see below)
- Press the *ENTER PASS.* soft key (
- > The last 8 digits of a workstation ID  
(balance ID no.), if available, are  
displayed in the measured value line
- Select password setting: Press
- > If a password exists, it is now displayed  
in the measured value line
- New password: Enter the letters/num-  
bers for the new password (8 characters  
max.)
- To delete the password, enter a decimal  
point using the  key and confirm
- Confirm input: Press
- Exit the Setup menu: Press
- > Restart your application

<b>General-Password:</b> <b>40414243</b>
---

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